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CLINICAL OBSERVATIONS ON CERTAIN CONSTITUENTS OF THE BILE*

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AND
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In 1919, Lyon [1] described a relatively simple clinical method for the diagnosis and treatment of diseases of the gallbladder and biliary ducts. This, in brief, consisted in the drainage of the biliary tract through a duodenal tube after relaxation of the sphincter of Oddi by the local application to the duodenum of a concentrated solution of magnesium sulphate. The method was based on a suggestion from Meltzer [2] that magnesium sulphate might relax the sphincter of the common duct and permit the ejection of bile into the duodenum. By making use of this procedure, Lyon believed that he could collect separately bile from the common duct, the gallbladder and the hepatic ducts, and could study each sample chemically, bacteriologically and cytologically. The potential importance of Lyon's work was immediately recognized, and already a large and somewhat conflicting literature on the so-called Meltzer-Lyon test has accumulated. Certain observers, notably Brown,[3] Smithies [4] and Sachs,[5] confirm Lyon's observations and believe that the method is of great practical value both in diagnosis and in treatment, while others, such as Dunn and Connell,[6] Bassler, Luckett and Lutz,[7] Cutler and Newton,[8] and Hartman,[9] are less enthusiastic concerning its efficacy. Despite the varying results that have been reported, two facts with regard to the method remain outstanding: It affords a means for the clinical study of the excretion of the biliary passages, and it allows the study of liver function from a fresh point of view.

In a recent review of the origin and significance of the constituents of bile, Whipple [10] has pointed out the need for critical analysis of the data obtained by Lyon's method in order to guard against too free interpretation of results. With this warning in mind, it has seemed of interest to compare the reported characteristics of bile obtained through the duodenal tube by Lyon's method under various conditions with analyses of specimens of bile which were obtained directly from a known source in the biliary tract under known pathologic conditions.

For this purpose we have obtained samples of bile from the gallbladders removed at operation in a series of cases of gallbladder disease at the Mayo Clinic. We have noted the color and turbidity of the bile, estimated its specific gravity and viscosity, determined the concentration in cholesterol, nitrogen and urea nitrogen, examined the sediment microscopically, and finally attempted to correlate the results obtained from such analyses with the clinical and operative findings. These constituents of bile were selected for study because most workers with the Meltzer-Lyon test have drawn conclusions of clinical importance from changes in the specific gravity, viscosity and color of the various bile specimens, and have placed considerable emphasis on the bile sediments and cholesterol content. The urea nitrogen and total nitrogen were estimated, with the hope that the findings might reveal information of interest.

The material at our disposal consisted of seventy-two specimens of gallbladder bile from thirty-six cases of chronic catarrhal cholecystitis without stones; from twenty-three cases of chronic cholecystitis with one or more stones; from one case of papillomatous cholecystitis; from one case of sarcoma of the gallbladder complicated by chronic catarrhal cholecystitis and stones; from six cases of acute or subacute purulent cholecystitis without stones, and from six cases of biliary obstruction in which the contents of the gallbladder consisted of so-called white bile. The plan of the work was as follows: The bile obtained at operation was sent to our laboratory as soon as possible. The color and turbidity were noted; the specific gravity was determined by weight; the viscosity was measured in a Hess [11] viscosimeter, with distilled water used as a control; the total nitrogen was obtained by Kjeldahl's method, the urea nitrogen by Van Slyke and Cullen's [12] blood urea method, the cholesterol by Autenrieth and

* From the Section on Medicine, Mayo Clinic.

* Read before the New York Academy of Medicine, Oct. 17, 1922.

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Funk's [13] method, and unstained centrifuged bile sediments were examined microscopically. Because of the scarcity of material in certain instances and because of technical difficulties in the handling of bile which had to be overcome by experimentation, all tests were not made on all the samples of bile received. Such analyses as were made in each case, however, and the important features of the individual case histories and operative findings were tabulated in an effort to correlate the clinical and laboratory findings. The results of this study are reported.

TABLE 1.—SPECIFIC GRAVITY OF GALLBLADDER BILE IN CASES OF CHRONIC CHOLECYSTITIS WITH AND WITHOUT CHOLELITHIASIS

Chronic Cholecystitis With Cholelithiasis		Chronic Cholecystitis Without Cholelithiasis	
Sample Number	Specific Gravity	Sample Number	Specific Gravity
1	1.002	1	1.014
2	1.005	2	1.015
3	1.005	3	1.015
4	1.007	4	1.017
5	1.009	5	1.018
6	1.011	6	1.018
7	1.013	7	1.020
8	1.014	8	1.021
9	1.014	9	1.024
10	1.015	10	1.024
11	1.015	11	1.025
12	1.016	12	1.027
13	1.018	13	1.030
14	1.019	14	1.031
15	1.020	15	1.032
16	1.022	16	1.033
17	1.023	17	1.037
18	1.031	18	1.038
Maximum	1.031	Maximum	1.038
Minimum	1.002	Minimum	1.014
Average	1.014	Average	1.024

The color and consistency of gallbladder bile is remarkably variable. It may be colorless or so dark as to be nearly black; it may be clear or very cloudy. We attempted to devise a rough method for comparing the color of various samples of bile by measuring the dilution necessary to bring individual samples to a standard color of an arbitrary mixture of potassium dichromate and Bismarck brown in water. This method was inaccurate, and at best of qualitative value. In a general way, however, the samples of bile from the cases of chronic cholecystitis with stones tended to be somewhat lighter in color than those from chronic cholecystitis without stones. Cloudy bile was usually associated with a more active inflammatory condition of the gallbladder than was clear bile.

Undoubtedly, a far better method for studying the color of bile is that used by Jones [14] in his work on blood pigment metabolism. Jones, using the spectroscopic method of analysis, found that increased blood destruction was accompanied by an increase of pigments in the bile, that alterations in liver function due to infection or new growth were also accompanied by marked increases in bile pigment, and that the bile pigments in the duodenal contents from cases of gallbladder disease were abnormally high, although the bile pigments in cases of cholelithiasis were less concentrated than in cases of uncomplicated cholecystitis.

From the foregoing evidence it seems, on the whole, justifiable to believe that increased bile pigment, in samples of bile obtained by Lyon's method, is of definite clinical significance, signifying either increased blood destruction or disease at some point in the biliary tract, and that turbid, cloudy bile is more likely to be associated with acute cholecystitis than with chronic.

The specific gravity of thirty-six of the samples of bile analyzed in this series is recorded in Table 1. As may be seen, great variations were encountered, although on the whole in the cases of chronic gallbladder disease without stones there was a tendency for the specific gravity to be higher than in cases complicated by stones. This variation in specific gravity may be of certain clinical importance in connection with the Meltzer-Lyon test. One must remember, however, that small amounts of concentrated magnesium sulphate in bile will increase the specific gravity, so that great importance cannot be attached to the finding unless a given sample is proved to be free of the salt.

In Table 2 are recorded the observations on the viscosity of bile. This table is not striking. The viscosity in the two groups of cases which were compared varied within wide limits, and the average of the two groups was nearly similar. The viscosity of the bile from other cases showed equal variability. It appears doubtful from these data whether changes in the viscosity of bile have any particular clinical significance except when extreme values are encountered.

The possible variations in the cholesterol content of bile are demonstrated in Table 3. It appears that bile may contain relatively small or very large amounts of cholesterol. From our evidence it was impossible to make clinical use of the bile cholesterol findings, as they varied so markedly in all cases of chronic gallbladder disease. These findings confirm the earlier observations of Peirce [15] and Nathan,[16] who found no uniform relationship between the cholesterol content of bile and disease. Therefore, it seems reasonable to conclude that the bile cholesterol findings, alone, are of no clinical significance in connection with Lyon's method, although it is possible, as Medak and Pri-

TABLE 2.—VISCOSITY OF GALLBLADDER BILE IN CASES OF CHRONIC CHOLECYSTITIS WITH AND WITHOUT CHOLELITHIASIS

Chronic Cholecystitis With Cholelithiasis		Chronic Cholecystitis Without Cholelithiasis	
Sample Number	Viscosity	Sample Number	Viscosity
1	1.4	1	1.4
2	1.5	2	1.6
3	1.8	3	1.6
4	2.0	4	1.7
5	2.0	5	1.8
6	2.0	6	1.8
7	3.0	7	2.0
8	3.0	8	2.4
9	4.8	9	2.4
10	7.0	10	2.6
11	Could not be estimated	11	2.6
		12	2.8
Maximum	Could not be estimated	13	3.0
		14	3.0
Minimum	1.4	15	3.6
Average	2.8	16	3.7
		17	3.8
		18	4.1
		19	4.1
		20	4.4
		21	4.6
		22	4.8
		23	5.2
		24	5.4
		25	5.4
		26	6.0
		Maximum	6.0
		Minimum	1.4
		Average	3.3

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16. Nathan, M.: Untersuchungen über den Cholesteringehalt von menschlichen Gallen, Arch. f. path. Anat. **228**: 51-57, 1920.

bram [17] have suggested, that a comparison between the blood cholesterol and the cholesterol content of liver bile may yield information of greater clinical interest.

The total nitrogen content of gallbladder bile in the cases studied was variable (Table 4). The results from those of chronic cholecystitis, with and without stones, are tabulated. On the whole, the bile from the

TABLE 3.—CHOLESTEROL OF GALLBLADDER BILE IN CASES OF CHRONIC CHOLECYSTITIS WITH AND WITHOUT CHOLELITHIASIS

Chronic Cholecystitis With Cholelithiasis		Chronic Cholecystitis Without Cholelithiasis	
Sample Number	Cholesterol, Mg. for Each 100 C.c. of Bile	Sample Number	Cholesterol, Mg. for Each 100 C.c. of Bile
1	278	1	184
2	333	2	208
3	425	3	263
4	502	4	310
5	575	5	313
6	575	6	332
7	600	7	344
8	1,085	8	344
9	1,250	9	473
Maximum	1,250	10	484
Minimum	278	11	532
Average	631	12	532
		13	543
		14	560
		15	560
		16	625
		17	635
		18	645
		19	666
		20	715
		21	725
		22	835
		23	846
		24	1,000
		25	1,100
		Maximum	1,100
		Minimum	184
		Average	551

cases without stones tended to be more concentrated in nitrogen than that from the cases with stones. No information of clinical importance, however, was obtained from this analysis.

The urea content of bile was less variable and was essentially the same in the cases of chronic cholecystitis, with and without stones, as well as in the other cases studied (Table 5). This finding probably depends on the fact, which Marshall and Davis [18] have demonstrated, that urea is uniformly distributed throughout all the body protoplasm, and is found in all body fluids in approximately the same concentration as it occurs in blood. The truth of this statement is further demonstrated by the findings at necropsy in two cases of chronic nephritis, in which the gallbladder bile had a very high urea concentration. Moreover, the bile draining from the liver of a patient with a biliary fistula, who eventually died of nephritis, had a very rapid increase in urea concentration during the four days before death, this increase coinciding with a rapid increase in the urea concentration of the blood, and the development of signs and symptoms suggesting renal insufficiency. The urea of bile normally, therefore, is of about the same concentration as of blood, and is notably increased by circumstances increasing the urea in the blood.

Since the liver and kidneys are the two chief excretory organs of the body, and since the bile urea excretion rises when urea accumulates in the blood because of nephritis, the question of a possible interrelationship between certain of the excretory functions of the liver and kidney naturally arises. Becher [19] has attacked this problem experimentally, comparing the nonprotein nitrogen and urea nitrogen of the blood and gallbladder bile in nephrectomized dogs. He concluded that while the excretion of nitrogenous substances in the bile increases in the absence of the kidneys, yet the increase is of little importance when the total amount of nitrogen excreted in bile is compared with that excreted in the urine over similar periods of time. He showed, furthermore, that the urea nitrogen fraction of the bile rose more rapidly than the total nonprotein nitrogen after nephrectomy, a circumstance which he attributed to the easy diffusion of urea. He was unable to produce evidence of any vicarious excretion on the part of the liver in the absence of the kidney. Our data do not justify conclusions on this point.

The microscopic examination of gallbladder bile sediments gave inconsistent results and was of little clinical significance in our hands. We were able to identify leukocytes in the sediments of bile from the cases of acute purulent cholecystitis, and often found epithelium or an occasional blood corpuscle in the cases of chronic cholecystitis, with and without stones. We found considerable granular and crystalline débris which we failed to identify satisfactorily in almost all cases. Perhaps our results would have been more striking had we stained the sediments, or used some method of fixation.

In the six cases of white bile studied, the bile almost uniformly was of low specific gravity, contained small amounts of nitrogen and urea nitrogen in about the concentration of normal blood, and was free of cholesterol. This suggests, as Rous and McMaster [20] have shown experimentally, that white bile in the gall-

TABLE 4.—TOTAL NITROGEN OF GALLBLADDER BILE IN CASES OF CHRONIC CHOLECYSTITIS WITH AND WITHOUT CHOLELITHIASIS

Chronic Cholecystitis With Cholelithiasis		Chronic Cholecystitis Without Cholelithiasis	
Sample Number	Nitrogen, Mg. for Each 100 C.c. of Bile	Sample Number	Nitrogen, Mg. for Each 100 C.c. of Bile
1	77	1	119
2	77	2	185
3	140	3	252
4	151	4	308
5	168	5	308
6	182	6	322
7	196	7	325
8	224	8	336
9	238	9	413
10	266	10	434
11	266	11	442
12	266	12	448
13	308	13	463
14	370	14	504
15	392	15	507
16	392	16	518
17	413	17	525
18	420	18	532
19	448	19	546
Maximum	448	Maximum	546
Minimum	77	Minimum	119
Average	263	Average	394

bladder represents the secretion of the organ, and is not bile in the ordinary sense of the word. Moreover, since white bile is cholesterol free, it appears doubtful whether, according to Naunyn, cholesterol secreted by the gallbladder wall can be an etiologic factor in the production of gallstones.

17. Medak, E., and Pribram, B. O.: Klinisch-pathologische Bewertung von Gallenuntersuchungen am Krankenbett, Berl. klin. Wchnschr. **52**: 706-709, 740-743, 1915.

18. Marshall, E. K., Jr., and Davis, D. M.: Urea: Its Distribution in and Elimination from the Body, J. Biol. Chem. **18**: 53-80, 1914.

19. Becher, E.: Ueber den Gehalt der Blasengalle an Reststickstoff und Harnstoff bei nephrektomierten Hunden, Deutsch. Arch. f. klin. Med. **128**: 13-19, 1919.

20. Rous, Peyton, and McMaster, P. D.: Physiological Causes for the Varied Character of Stasis Bile, J. Exper. Med. **34**: 75-96 (July) 1921.

CONCLUSIONS

On the whole, the attempt to obtain information of clinical value from the results of the analyses of bile reported was disappointing. It is true that gallbladder bile from cases of cholecystitis with gallstones tended to be less pigmented, of lower specific gravity and less rich in nitrogen than the bile from cases of cholecystitis without stones; that cloudy bile was often present in acutely inflamed gallbladders; that an isolated bile cholesterol analysis or viscosity determination was without clinical significance; that the bile urea concentration was approximately the same as that of blood under various conditions, and that unstained bile sediments in cases of acute cholecystitis usually contained numerous leukocytes. We were unable, however, on account of the great variation encountered in the composition of the individual specimens of bile studied, to arrive at any but these very general conclusions, and failed to correlate satisfactorily our data with the clinical and operative findings. These analyses were made on bile obtained from a known source in the biliary tract under known pathologic conditions. It seems doubtful, therefore, whether much diagnostic significance can be attached in the clinical study of cases to similar analyses of bile, the specimens of which are collected through the duodenal tube by Lyon's method, and at best by an indirect route from an undetermined source in the biliary tract.

TABLE 5.—UREA NITROGEN OF GALLBLADDER BILE IN CASES OF CHRONIC CHOLECYSTITIS WITH AND WITHOUT CHOLELITHIASIS

Chronic Cholecystitis With Cholelithiasis		Chronic Cholecystitis Without Cholelithiasis	
Sample Number	Urea Nitrogen, Mg. for Each 100 C.c. of Bile	Sample Number	Urea Nitrogen, Mg. for Each 100 C.c. of Bile
1	6	1	7
2	9	2	10
3	10	3	10
4	10	4	12
5	11	5	13
6	14	6	13
7	14	7	15
8	15	8	15
9	16	9	18
10	16	10	18
11	17	11	18
12	18	12	20
13	19	13	20
14	19	14	21
15	20	15	24
16	44	16	39
Maximum	44	Maximum	39
Minimum	6	Minimum	7
Average	16	Average	16

Explanation for Uncontrollable Vomiting of Pregnancy.—M. von David suggests that not the pregnancy itself is responsible for the toxic action manifested by the vomiting, etc., but the fact that the fetus is from its father's side an alien. Its blood is alien blood. She noticed that when the pigmentation during pregnancy corresponded to that of the husband rather than of the woman herself, the child when born showed the father's coloring. This was particularly noticeable in one blonde woman with a creole husband. In a second pregnancy the pigmentation was slight, and the second child was a blonde. She observed that the offspring resulting from pregnancies during the course of which there is vomiting closely resemble the father. In her communication on the subject, published in the *Zentralblatt für Gynäkologie* **46**:1067, 1922, she relates the successful treatment of the incoercible vomiting of pregnancy by the systematic active immunization of the woman with blood taken from the husband. The vomiting stopped after one or two injections of the husband's blood.

AN AMINO-ACID DEFICIENCY AS THE PRIMARY ETIOLOGIC FACTOR IN PELLAGRA

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The evidence now available abundantly demonstrates that pellagra is a manifestation of dietary deficiency. Exactly what dietary factor or factors are concerned, however, is not so clear, although the indications have for some time increasingly pointed to the protein,[1] that is, to some amino-acid deficiency, as the essential primary factor concerned in the causation of the disease.

In support of this interpretation, we reported[2] last spring the recurrence of pellagra in five patients in spite of a daily consumption, during periods of not less than two and one-half months before the appearance of the distinctive eruption, of a diet presumably adequately supplied with both minerals and known vitamins, thus tending to exclude these and pointing to amino-acid deficiency as the essential factor. Since that report was written, we have been able to make some additional observations that point even more strongly to amino-acid deficiency as the primary etiologic factor in pellagra. Recurrences of the disease have again been observed in several members of a group on a diet even more liberally supplied with vitamin-rich foods and minerals than in the cases previously reported.[2] Of these cases, six are particularly significant because they were in persons who were good eaters and who were known to have almost or quite completely consumed the enriched diet offered.

The basic institutional diet of this group of patients included daily, among other items, fully 4 ounces (113 gm.) of whole maize meal (white) in the form of corn bread; 1 ounce (28 gm.) of cowpeas (California black eye); one-half ounce (14 gm.) of butter (locally produced); four or five times a week, a moderate helping of green leafy vegetables (such as turnip greens, young cabbage or collards), and two or three times a week some sweet potatoes. This diet was enriched with respect to vitamins and inorganic minerals by the daily addition, furnished by us with the hope that recurrence of the disease might thus be prevented, of cod liver oil, 9 fluidrams (32 c.c.); canned tomato juice, 3¼ fluidounces (100 c.c); bakers' yeast, one-half ounce (14 gm.), and a dose of two mineral solu-

COMPOSITION OF MINERAL SOLUTIONS

Solution AA:	
Calcium acetate, $Ca(C_2H_3O_2)H_2O$	5.274 gm.
Magnesium chlorid, $MgCl_2$	.470 gm.
Ferric chlorid, FCl_3	.040 gm.
Solution BB:	
Sodium sulphate, Na_2SO_4	1.510 gm.
Potassium phosphate, KH_2PO_4	4.983 gm.

1. Goldberger, Joseph; Wheeler, G. A., and Sydenstricker, Edgar: A Study of the Relation of Diet to Pellagra Incidence in Seven Textile Mill Communities of South Carolina in 1916, Pub. Health Rep. **35**: 648-713 (March 19) 1920. Wilson: The Diet Factor in Pellagra, J. Hyg. **20**: 1-59 (July) 1921.

2. Goldberger, Joseph, and Tanner, W. F.: Amino-Acid Deficiency Probably the Primary Etiological Factor in Pellagra, Pub. Health Rep. **37**: 462-486 (March 13) 1922. Goldberger, Joseph: The Relation of Diet to Pellagra, J. A. M. A. **78**: 1676-1680 (June 3) 1922.

tions yielding approximately the elements of the ash of a liter of milk.

These solutions differ from those we previously used in that these yield slightly more phosphorus, considerably more iron and much less sodium and chlorin.[3] The latter elements, however, were liberally supplied by the table salt used in cooking and by a daily ration of 90 drops of dilute hydrochloric acid, U. S. P. In addition, each patient was given at supper 2 drops of syrup of ferrous iodid, U. S. P.

The supplement of cod liver oil, tomato juice, yeast and hydrochloric acid was separately administered; the mineral solutions were stirred into the food, BB at breakfast and AA at the midday dinner. In measuring out the mineral solutions, an increase of 10 per cent. over that shown in the table was actually given so that patients, such as those we are about to report on, who cleaned their plates, actually consumed somewhat more than the quantities stated above.

The significant points in the histories of two fully representative cases of the group of six are, briefly, as follows:

CASE 1.—A white woman, aged 39, weighing 49.6 kg., who had pellagra in 1917, in 1918 and in March, 1921, began taking the enriched diet described above, Jan. 3, 1922, at which time she was without recognizable evidence of pellagra. April 5, there was noted the beginning of a pellagrous dermatitis on the hands, forearms and forehead. Throughout the interval of three months her food consumption was excellent. During January she took all food offered; during February she left uneaten the equivalent of but half a dinner meal; during March she refused dinner on the 21st and again on the 24th, breakfast and breakfast supplements on the 29th, and about three fourths of her supper on the 31st; during the period from April 1 to April 5 she ate all food offered. Thus it may be said that she consumed virtually all the food and supplements offered during the period of three months before the beginning of the erythema marking the onset of the recurrence.

CASE 2.—A white woman, aged 31, weighing 44.5 kg., who had pellagra in 1914, 1918 and 1920, began taking the enriched diet, Jan. 3, 1922, at which time she was without recognizable evidence of pellagra. Between May 3 and May 10, a pellagrous dermatitis made its appearance on her feet, marking the beginning of a recurrence, although throughout the preceding four months she had regularly cleaned her plate, consuming all the food and supplements offered.

The occurrence of these cases of pellagra in spite of the consumption of a diet which included a considerable variety, representing almost every known class, of vitamin-rich foods that in the aggregate must, it would seem, have yielded an abundance of all such complexes, and which had its mineral elements liberally enriched by the additions described, would seem definitely to exclude deficiency of all known vitamins and minerals as essential factors in the development of the disease, thus leaving, of the known dietary essentials, protein alone for consideration. If it were established that the dietary essentials at present known were all that are required in the nutrition of man, it would manifestly be permissible definitely to conclude that the protein factor is the one primarily concerned in the prevention and causation of pellagra. Since this cannot be regarded as fully established, it follows that this evidence does not exclude, although its nature would appear to render improbable, some as yet unknown or unappreciated factor.

3. The quantities of the elements yielded by a dose of these solutions are: calcium, 1.20 gm.; phosphorus, 1.13 gm.; iron, 0.0138 gm.; potassium, 1.43 gm.; sulphur, 0.34 gm.; magnesium, 0.12; sodium, 0.24 gm., and chlorin, 0.14 gm.

This improbability would seem materially heightened by the indications afforded by another case of pellagra recently observed by us, the significant points in connection with which are as follows:

CASE 3.—A colored woman, aged 25, on admission to the Georgia State Sanitarium in August, 1920, was in a state of catatonia with marked stupor and would take no food. There was no history of pellagra nor signs of the disease on admission. She remained in a deep stupor until August, 1921, at which time she passed into a state of marked excitement in which she has, in varying degree, continued. Nothing of interest in her physical condition that is relevant was noted until May 20, 1922, when dermal lesions were observed on her hands which must have first appeared within the preceding day or two and which, in the course of the subsequent fortnight, developed so as to be recognized as pellagrous. During the last week of this month the bowels became quite loose, and the mouth sore. June 5, the tongue was quite red, and a diagnosis of pellagra was then made.

The record of her diet, which had been carefully kept as that of one of several patients under special observation in a study of the preventability of pellagra, reveals the following facts of interest in the present connection:

By reason of her refusal to take food at the time of her admission, it was necessary soon after to begin administering food by tube. The feeding by tube had to be continued without a break until September, 1921, at which time she began to cooperate and from time to time drank her ration voluntarily. The composition of her diet varied somewhat at different periods, but, beginning February 18 and up to May 16, 1922, she consumed daily 24 ounces (700 c.c.) of fresh milk, 1 ounce (28 gm.) of pork fat, 2 ounces (60 c.c.) of cod liver oil, 1½ ounces (43 gm.) of lactose, 4 ounces (113 gm.) of sucrose, 4 ounces of canned tomato juice, a dose of the mineral solutions described above, and 2 drops of syrup of ferrous iodid, representing in all about 1,900 calories. Between April 11 and May 16, the vitamin B content of this ration was fortified by a daily dose of 5 gm. of an "activated solid" preparation, the potency of which for pigeons was such that it was calculated that an adult man's needs for vitamin B would be satisfied by a daily dose of 10 gm. of this preparation, for which we are indebted to Dr. Atherton Seidell of the Hygienic Laboratory. During the period of six or seven months immediately preceding Feb. 18, 1922, her daily diet differed from that here summarized for the period after February 18 only in that it included about 8 ounces (240 c.c.) more of fresh milk and 1½ ounces (43 gm.) less of lactose.

May 16, four days before the beginning of the dermal lesions was detected, which, as stated, later proved to be pellagrous, this ration was modified in order to increase the calories, the patient not having shown any tendency to gain in weight. Incidentally, the quantity of milk was slightly reduced, the sugar and tomato juice increased, and the "activated solid" vitamin B preparation discontinued so that between this date and June 5 or 6 she took daily 20 ounces (600 c.c.) of fresh milk, 1 ounce (30 c.c.) of a vegetable cooking oil, 2 ounces (60 c.c.) of cod liver oil, 8 ounces (227 gm.) of sucrose, 6 ounces (178 c.c.) of tomato juice, a dose of the mineral solutions, 2 drops of syrup of ferrous iodid and 5 gm. of table salt, in all yielding 2,100 calories, or about 200 more than she had been taking up to May 16.

Since it seemed to us that the definite onset of this attack of pellagra had to be assigned at the earliest to about the middle of May, the diet to be considered in relation to the onset of this attack was that of the immediately preceding period (ending May 15), a complete record for three months of which is summarized above. A consideration of the composition of the diet of that period suggested that, if it was faulty, the fault most probably lay in too low a yield of protein—approximately 24 gm. of milk protein a day. (The patient, it may be noted, weighed between 45 and 46 kg.) This seemed all the more probable by reason of the fact that the diet during the immediately preceding period of seven months had included 8 ounces (236 c.c.) more of fresh milk, and because the modification in diet—made just when, as later

developments proved, the distinctive objective evidence of the onset first began to appear—involved a slight reduction in the protein incidental to the slightly reduced intake of milk. Accordingly, as soon as it was realized that the patient was progressively developing symptoms of pellagra, it was decided to change her diet so as to alter its composition significantly only with respect to the protein. June 6, therefore, she began to take daily 2 ounces (57 gm.) of skim milk powder (Merrell-Soule), that is, the equivalent of 20 or 21 ounces of liquid skim milk; 2 ounces of larosan (a calcium casein, a sample of which was analyzed by the chemical division of the Hygienic Laboratory and found to contain: protein, 81.26 per cent.; fat, 0.36 per cent., and ash, 5.15 per cent.); 2 ounces (59 c.c.) of cod liver oil; 1 ounce (30 c.c.) of a vegetable cooking oil; 8 ounces (227 gm.) of sucrose; 6 ounces (178 c.c.) of canned tomato juice; a dose of the mineral solutions; 2 drops of syrup of ferrous iodid, and 5 gm. of table salt. July 7, the 2 ounces of the calcium casein preparation was replaced by 2 ounces of a casein of good quality (Harris' "vitamin B free").

So far as it is possible for us to judge, this ration differed from the one of the period from May 16 to June 5—which it replaced, and associated with which, be it noted, there was a progressive development and accentuation of symptoms—in a reduced yield of vitamins[4] to the extent of the difference between the quantity of those in 20 ounces (592 c.c.) of fresh whole milk and those in 2 ounces of skim milk powder and 2 ounces of larosan (or casein), and in an increase in the supply of protein represented by the difference between, on the one hand, the amount in 20 ounces of fresh milk and, on the other, that in 2 ounces of skim milk powder and 2 ounces of larosan, a difference computed by us to be not less than 45 gm.

Following the return to a higher protein diet brought about by this change, there was a prompt clinical improvement. Within three weeks the soreness and redness of the mouth and looseness of the bowels had disappeared, and of the dermatitis there were left only some fringes marking some of the limits of the skin lesions. At the end of two months, no evidence of the attack was recognizable and a slight gain in weight had occurred.

We have here, then, a case of pellagra that developed following a reduction in milk consumption, the progress of which was promptly arrested and the symptoms of which rapidly cleared up after a change in diet which, so far as we are able to judge, involved significantly a modification in only one factor; namely, a marked increase in protein. Since our experience with some other similar cases has convinced us that, had the diet associated with the progressive development and accentuation of symptoms of the period from May 16 to June 4 or 5 been continued, no arrest in the progress of the attack could have been expected, we feel warranted in concluding that the favorable course following the change in diet was the direct result of this change; that is, of the notable increase in the protein (with, if anything, reduction in vitamins).

The further conclusion would therefore seem to be suggested that the fault in the diet with which the development of the attack in this case was associated lay in the protein or, in view of the present-day conception of protein as a complex of amino-acids, in some fault in the amino-acid supply.

4. This is, of course, simply a judgment based on the fact that skim milk powder is much poorer in vitamins than fresh whole milk, and in the belief that, while probably not entirely free of vitamins, the amount of these carried by the larosan and the casein was so very small as to be relatively negligible. A ration containing 18 per cent. of this casein was found too poor in vitamin B to permit young rats to grow or long to survive. We did not test it for vitamin A but we had in mind our experience with butter, which indicates that the vitamins of this milk product in fairly liberal quantities are apparently inadequate to prevent pellagra, since we have seen recurrences in individuals who had eaten considerable butter, in two instances as much as 3 ounces (85 gm.) daily for three or four months.

COMMENT

This is but one case,[5] even though a closely observed one; nevertheless, when considered in connection with the indications afforded by the other cases herein recorded and with those of our other similar previously reported observations,[2] the conclusion would seem strongly suggested that the essential primary etiologic dietary factor in pellagra is a faulty protein, that is, a faulty amino-acid supply.

It may be pointed out that this case is of interest in two or three other respects. In the first place, the disease developed in a patient subsisting on a diet containing no maize or any product of maize, nor, it may be added, had the patient eaten anything containing this cereal while under our observation during a period of fully seventeen months. It is of interest, in the second place, in that it suggests that of the explanations offered of the occurrence of the rare cases in nursing infants, that one attributing it to an inadequate supply of breast milk (or a faulty utilization of an otherwise adequate supply) resulting in amino-acid deficiency is probably the correct one.

Finally, it is of interest because of its seemingly paradoxical occurrence in a patient while on a diet containing milk, a food that we have ample reason to believe is efficient in prevention and treatment. It emphasizes what experience had already taught us, what, indeed, might naturally be anticipated but is quite frequently overlooked, namely, that the mere inclusion of milk (or other "preventive" food) in a diet is not in itself all sufficient. It must be included in adequate amounts. What the effective minimum is probably varies, depending doubtless on such variable intrinsic factors as individual digestive (and absorptive) efficiency under normal and pathologic conditions of the digestive tract, and on such extrinsic factors as whether the particular food is the sole source of protein in the diet, as in the case under discussion, or serves to supplement other proteins or protein mixtures. In this connection we wish to state that in a study still in progress we have found 40 ounces (1,183 c.c.) of buttermilk (approximately 36 gm. of milk proteins) as a supplement to a diet the protein mixture of which is otherwise derived principally from maize, and in less degree from wheat, rice and cowpeas, ample to prevent recurrence of the disease in any of a group of about eighteen pellagrins during a period now of fully ten months. The effective minimum may vary also, there is reason to think, with the make-up of the diet in other respects, such as vitamin content; and, in this sense, a vitamin or vitamins may play an important rôle by minimizing or accentuating the effects of the protein fault.

SUMMARY

1. Some additional recurrent cases of pellagra were observed in persons who, during periods as long as three and four months immediately preceding the onset, had consumed a diet which included a considerable variety, representing almost every known class, of vitamin-rich foods that in the aggregate must, it would seem, have yielded an abundance of the known complexes of this class, and which had its mineral elements enriched by a supplement of solutions yielding approximately the elements of the ash of a liter of milk.

5. The indications afforded by the results of treatment in three or four other cases developing in patients on a diet virtually identical with that on which this one developed are of little or no significance in the present connection, because the treatment adopted involved an increase in more than one dietary factor.

2. Patient 3, during a period of three months immediately preceding the onset of what appears to have been an initial attack, subsisted on a diet of about 1,900 calories in which virtually all the protein was derived from 24 ounces (710 c.c.) of fresh milk. During a further period of nearly three weeks on a diet yielding about 2,100 calories in which the protein was from only 20 ounces (592 c.c.) of fresh milk, the symptoms of the attack became progressively more marked; but following a change in the diet of this period which involved, so far as can be judged, significantly a modification in only one factor, namely, a marked increase in protein, there was a prompt clinical improvement.

3. The indications afforded by these observations, confirming and strengthening the indications of those previously reported, strongly point to the conclusion that the essential primary etiologic factor in pellagra is an amino-acid deficiency.

4. The case associated with a diet in which the sole source of protein was milk developed in a patient whose diet had included no maize nor any product of this cereal for at least seventeen months.

5. This case suggests that those rare cases in breast-fed infants are probably to be explained on the basis of an inadequate supply (or a faulty utilization of an adequate supply) of breast milk.

6. It emphasizes that the mere inclusion of a food believed to have preventive value is not itself all-sufficient: that a quantitative factor must be taken into account.

HEMATURIA AND APPENDICITIS*

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It is more common for an attack of colic, due to stones in the right ureter, to be mistaken for an attack of acute appendicitis, and for the appendix to be mistakenly removed, than it is for an attack of appendicitis to be diagnosed as stone in the ureter, and operation postponed. That there may occasionally be justification for the latter course is apparent from the following case history, which is given as related by the patient himself.

REPORT OF AUTHOR'S CASE

History.—L. G. W., Jr., aged 26, whose father had renal colic in his early thirties and passed stones, but has had no trouble since, whose brother died in 1904 from tuberculous meningitis, and whose sister had a thyroid gland removed two months previously, gave an otherwise excellent family history. The patient was said to have had a patulous foramen ovale for the first three months of life. His general health had been excellent. He had measles, pertussis, varicella and mumps in early childhood, but no other illnesses until 1917, when his feet were frozen while he was snow-shoeing in Canada. At this time, he developed a right basal pleurisy. He was tapped, and clear fluid obtained. The condition was thought to be tuberculous. The patient was in bed one month with this condition, and at that time his weight dropped from 145 to 125 pounds (65 to 56 kg.). Subsequent recovery was perfect. One year before, he had neuralgia of the left side of the face affecting the superior maxillary division of the fifth nerve. The left antrum was tapped at the time, and irrigated with physiologic sodium chlorid solution. There was no subsequent trouble.

The patient entered the Episcopal Hospital, Philadelphia, as resident physician in August, 1920, and at that time the weight was 145 pounds (65.75 kg.). The present weight was 195 pounds (88.43 kg.). The appetite was excellent and the bowels were regular. He had had a slight irritatibility of the bladder for the last two years, at times very evident and accompanied by frequency of urination. At other times, the bladder symptoms were entirely absent. There were occasional attacks of indigestion, flatulence, heartburn, feeling of fulness in the epigastrium and belching of gas. The attacks were accompanied by a very sour disposition. They had been much less frequent since his gain in weight.

The patient used tobacco moderately, in the form of pipe smoking. There was no gonorrheal or syphilitic infection. The Wassermann test made just before the present illness was negative.

Present Illness.—The chief complaint was pain in the right side. On the morning of admission (April 26, 1922), the patient had frequency of urination, with slight burning, passing rather scanty amounts. Several hours later, he developed pain in the head of the penis and in the right testicle. He felt a constant desire to urinate even when the bladder was empty. The pain was not severe in character. Immediately after eating dinner, at 6:15 p. m., he had a copious bowel movement, accompanied by great strain. At this time, he had slight intermittent pains, lasting thirty seconds and occurring about once every minute. The pains, which were in the lower right side, became longer, more frequent and more severe, until, in the course of an hour, the patient was unable to lie quietly in bed, but tossed about from side to side in each paroxysm. By this time, the pain was almost continuous. It was very severe and seemed to radiate from the lower right abdominal fossa downward and inward, at times extending to the head of the penis. Shortly after 7:30 p. m., he vomited rather copiously, and for five minutes felt relieved. Paroxysms of pain then again developed.

Examination and Course.—On admission, the patient was covered with a profuse cold and clammy sweat, and was very restless. Examination of the abdomen revealed no spasm of the recti, no masses palpable, slight tenderness in the right kidney region, very slight, hardly perceptible, tenderness in the lower right abdominal quadrant on deep pressure, and no superficial tenderness. The extremities were negative, and the reflexes negative. White blood cells numbered 9,800. The temperature was subnormal.

The patient was given a soapsuds enema as soon as he was admitted. He was very restless at this time and had difficulty in lying still. The pains seemed to be augmented immediately after the enema, but five minutes later the pain stopped with great suddenness. A specimen of urine obtained at this time and sent to the laboratory proved to be loaded with red blood cells. The patient was seen by Dr. Ashhurst at 9:30 p. m. Local examination was entirely negative excepting for tenderness on deep pressure low down in the right iliac fossa. Rectal examination was negative. On account of the slightly subnormal temperature, normal white blood cell count, blood in the urine and sudden cessation of pain, a diagnosis of stone in the right ureter was made.

April 27: The patient passed a good night, but at 10 a. m. developed an attack entirely similar to that described above. He was given morphin sulphate, one-fourth grain (0.016 gm.), and atropin, one one-hundredth grain, at 10:30 a. m. The symptoms abated shortly afterward. Roentgen-ray examination of the right kidney and ureter regions gave two shadows in the clear space of the sacro-iliac joint just below the pelvic brim, resembling ureteral calculi. The urine showed blood in microscopic amounts.

April 28: There was slight pain in the right side, but little tenderness. The patient was nauseated at times. Roentgen-ray examination failed to give shadows characteristic of calculi in the region of the ureter or bladder. There was still microscopic blood in the urine.

April 30: There was no pain, and the patient was up and about.

May 1: The patient was discharged in good condition.

* Read before the College of Physicians of Philadelphia, Oct. 4, 1922.

Second Admission.—The patient was readmitted, May 7, complaining of pain in the right side. He had gone down to New Jersey, May 5, to spend a week-end. May 6, he had a hearty midday meal. At 5 p. m. the same afternoon, he had very slight pain in the lower right abdominal quadrant. He hesitated to speak of this, so ate his evening meal at 6 p. m., after which the pain became very much more severe, and shifted to the epigastrium. The bowels moved freely, and the pain became so severe that he had to lie down. Shortly after 7 p. m., the patient vomited slightly, and experienced a feeling of relief; but in ten minutes the pain returned, and in twenty minutes he vomited again, quite profusely. About 1 dram of bright red blood was vomited in the first retching before the second vomiting spell. The pain was continuous throughout the night, and was interrupted now and then by vomiting spells. It was somewhat relieved by the application of heat in the form of an electric pad. Throughout the evening of the attack, there was no rigidity of either rectus, the pain was entirely epigastric and steady in character, and there was no tenderness in the lower right abdominal quadrant. The epigastric pain was accompanied by a decided feeling of fulness in the same region. There was no radiation of the pain to the right testicle or to the head of the penis, and no frequency of urination. The temperature was not taken. By morning, May 7, the pain had shifted to the lower right abdominal quadrant, and there was distinct tenderness over McBurney's point, with slight spasm of the right rectus. The pain was now a dull ache.

The patient returned to Philadelphia; he was admitted to the Episcopal Hospital, and was operated on at 12 noon May 7.

May 7: A notation (Dr. Ashhurst) reads: "The patient says this attack is entirely different in character from the former, in which the diagnosis was ureteral calculus. The slight fever, the leukocytosis (16,200), and the local signs indicate acute appendicitis. He now has no pain referred to the genito-urinary tract."

Operation.—Appendectomy was performed under gas and ether, 40 c.c., anesthesia. A transverse incision of 10 cm. was made. The cecum prolapsed when the peritoneum was opened. The appendix was adherent in the right lumbar region, lateral to the ascending colon. The tip was gangrenous. The meso-appendix was ligated in sections and the stump crushed, ligated and buried. No stones were palpable in the ureter at or below the brim of the pelvis. The wound was closed in layers without drainage. Silkworm-gut was employed for the skin.

The appendix contained two coproliths and fecal pus under tension.

Laboratory Report (Dr. C. Y. White): "Acute suppurative appendicitis in a chronic fibroid appendix."

Course.—May 8: The urine showed no blood.

May 9: The postoperative condition was fair. There was slight nausea. Severe pain was felt at night, with tenderness in the right testicle. Practically no sleep was obtained at night. The patient tossed about with severe pain, beginning each night about 10 p. m. and lasting until morning. The urine showed no blood.

May 11: The patient complained of pain paroxysmal in type and radiating down the right testicle. The temperature was slightly elevated.

May 12: The patient had had no sleep since the operation. At 9 p. m., he was given 1 grain of codein, by hypodermic injection; at 10:30 p. m., the dose was repeated, but the patient did not sleep. At 1 a. m., he was given one-fourth grain of morphin sulphate by hypodermic injection.

May 13: The patient slept after 2 p. m., and continued to sleep nearly all day. There was no pain. The urine showed microscopic amounts of blood.

May 14: The patient had a fine night, with no pain.

May 15: The stitches were removed, some fat and serum draining from the outer end of the incision. The temperature was down to normal.

May 18: The patient's condition was good; he was able to sit up.

May 19: The patient walked a little; there was no blood in the urine.

May 20: The condition continued good; the patient complained of a slight discharge of fat and serum from the lateral end of the incision. He was transferred to the resident physician's quarters from the private floor.

June 9: Cystoscopic examination by Dr. Pelouze revealed no stones in the bladder or right ureter. A catheter was passed with ease to the right kidney. Low-grade cystitis was present. The patient was not aware of having passed any stones at any time.

October, 1922: He has had no further abdominal or urinary symptoms.

COMMENT

The attack of April 26 certainly was sufficiently characteristic of ureteral colic to justify the clinical diagnosis. There was the colicky character of the pain, its reference to the genito-urinary tract, the premonitory vesical tenesmus, and the very sudden cessation of the pain at the conclusion of the attack. There was the absence of fever and leukocytosis, and only negligible tenderness even on deep pressure over the right iliac fossa. Added to these clinical facts, there was the confirmation derived from the finding of blood in the urine, and shadows resembling calculi in the pelvic portion of the ureter, as shown by the roentgenograms.

The fact that a subsequent roentgen-ray examination, two days after the acute attack, failed to give the same shadows, was believed to indicate that the calculi had passed into the bladder, where they were not easily detected. It was the intention to have a cystoscopic examination made as soon as convalescence was established; but the sudden onset of the typical attack of appendicitis necessitated its further postponement. It is probable that the shadows mistaken for two ureteral calculi were caused by the coproliths in the appendix,[1] though at operation (May 7), ten days after the roentgenograms were made (April 27), the appendix was found adherent in the right lumbar region on the lateral side of the ascending colon, and not hanging over the brim of the pelvis where the roentgenographic shadows were seen. But if the appendix was not adherent to the ureter below the pelvic brim at the time of the first attack, it is difficult to account for the hematuria and referred pain; and if it was adherent even then in the right lumbar region, where it was found at operation, it is difficult to believe that it would not have caused a repetition of the genito-urinary symptoms during the second attack, if its being adherent in that situation had caused them during the first attack. However, there seems no good reason to think that the patient ever did have ureteral calculi, as none were ever passed, and the skilful examinations of Dr. Pelouze disclosed that none were present in the bladder or ureter.

The following somewhat similar case was recently reported by von der Becke.[2]

A woman, aged 48, who was emaciated and anemic, had had colic in the right side of the abdomen for three or four years. Then, in February, 1921, she developed dysuria and frequency, with urine cloudy and very bloody. The kidneys were both palpable, and there was tenderness beneath the right costal margin. Cystoscopy revealed an inflamed bladder mucosa and slight ulceration around the right ureteral opening. The color test for the left kidney was normal, but much less than normal on the right. A ureteral catheter gave normal urine from the left, bloody and purulent urine from the right kidney. Roentgenograms gave three shadows in the right kidney region, taken for calculi. The diagnosis was pyonephrosis, right, with calculi. Right nephrectomy was performed, April 14, the kidney appearing practically normal at operation. The patient recovered and did well, for one week. Then there was a recurrence of symptoms, with fever, and a tumor

1. These cast roentgenographic shadows.
2. Von der Becke: Ztschr. f. Urol. **16**: 50, 1922.

the size of a child's fist was palpable in the gallbladder region. Since it was thought to be a phlegmon from the stump of the ureter, the kidney wound was reopened; but nothing abnormal was found. (Pathologic examination of the kidney revealed no lesions of note.) Fever continued, and the tumor in the region of the gallbladder was still palpable. It was believed that the shadows taken for kidney stones might be gallstones. Fifty-two days after nephrectomy, the abdomen was opened over the gallbladder, which was buried in adhesions, but was normal. However, on its under side, the appendix was found, running directly behind the right lobe of the liver. It was removed, and was found to be very long and chronically inflamed. Uneventful recovery followed.

Casper remarked, in the discussion that followed the presentation of the case just quoted, that, if there is only blood in the urine, the diagnosis between appendicitis and ureteral or renal calculus is difficult; if pus as well as blood comes from the right ureter, the renal affection is the true diagnosis. But the urine from the right ureter in von der Becke's patient was reported as purulent, so even this sign may prove unreliable.

CONCLUSION

In the present state of our knowledge, we can only speculate as to the method by which disease of the appendix may cause hematuria. Is it from direct irritation of the kidney or ureter by an adherent inflamed appendix, or is it possibly the result of toxins carried by the blood and excreted by the kidneys? The former seems the more probable, at least in those cases in which the urine from the left kidney is normal.

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MEDICOLEGAL APPLICATION OF HUMAN BLOOD GROUPING

THIRD COMMUNICATION: SOURCES OF ERROR IN BLOOD GROUP TESTS, AND CRITERIA OF RELIABILITY IN INVESTIGATIONS ON HEREDITY OF BLOOD GROUPS

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Since 1907, when I did the first transfusion recorded in which tests for blood compatibility were made,[1] I have performed many thousand blood group tests. Occasionally I have had to correct my own errors as well as those of others. Experience with successive generations of hospital interns has taught me that, in spite of the simplicity of the test, most beginners will make mistakes in grouping unless specifically taught about certain sources of error.

The subject is particularly important at present because: (1) Blood transfusion is being increasingly used; (2) the group test will probably be employed in the near future in medicolegal work, and (3) Buchanan's recent articles[2] denying the correctness of all the preceding work on the heredity of the blood groups make it necessary for some other person to do an extensive piece of investigation.

WHAT IS THE BEST TECHNIC?

A number of different methods are in use. Any of them will give correct results in the hands of an expert who is acquainted with all the sources of error.

1. The test tube method is the oldest. It has the disadvantages that it is wasteful of serum and that readings are more difficult to make than with other methods, so that weak agglutination can be overlooked.

2. The modified Wright capillary pipet method has the disadvantage of requiring too much glassware and too much expertness.

3. The hanging drop method and the use of hollow ground slides are "to be avoided, since the red corpuscles may sink to the bottom of the depression and simulate a massive agglutination where none is present"—an opinion which I have held for a long time and which was independently reached by Learmouth.[3]

4. The open slide method of Vincent[4] is the method of choice. The technic is extremely simple. One drop of serum is placed on a slide, and into it is allowed to fall one drop of the cell emulsion. (This is better than platinum loopfuls of serum and cells, because with the latter the amount is rather too small.) The slide is tilted and rotated gently, so that the cells are uniformly distributed; this is repeated every couple of minutes. Agglutination is easily seen with the naked eye in from one to ten minutes at room temperature. The microscope is not needed and should not be used. Genuine agglutination is always visible to the naked eye. The observations should never be extended for longer than fifteen minutes.

The method has the added advantage that the dried tests can be kept, according to the suggestion of Culpepper and Ableson,[5] as permanent records. If the slides are not moved after the first ten or fifteen minutes, the artefact of agglutination due to drying does not occur. To prevent their chipping off, the dried specimens should be painted with a layer of collodion.[6]

SOURCES OF ERROR IN THE TESTS

Deteriorated Serums.—The agglutinative power of serums gradually diminishes, no matter how they are kept. Different specimens vary, some deteriorating very rapidly, others hardly at all. Sealed samples kept on the ice retain their strength for long periods. None of the known methods of preserving serums is entirely satisfactory.

These facts suggest two essential precautions which can be demanded in all authentic work: (1) Every test must be done in duplicate with two different serums of each test group (II and III). (2) Test serums must be shown to be active at the time of the tests. This must be controlled by using them against known Group II and Group III cells within at most a few days of the tests.

The Use of Serums Originally Weak.—Agglutinative serums vary greatly in strength. A test serum must be shown not only to be of the correct group, but also to be highly potent before it is accepted for use.

Hemolysis.—Hemolysin never occurs in serum without the corresponding agglutinin. Complete hemolysis can hardly be overlooked and may usually be regarded

1. Ottenberg, Reuben: Ann. Surg., April, 1908, p. 506.
2. Buchanan, J. A.: Medicolegal Application of the Blood Group, J. A. M. A. **78**: 89 (Jan. 14) 1922; **79**: 180 (July 15) 1922.
3. Learmouth: J. Genetics **10**: 141, 1920.
4. Vincent, Beth: A Rapid Macroscopic Agglutination Test for Blood Groups, and Its Value in Testing Donors for Transfusion, J. A. M. A. **70**: 1219 (April 27) 1918.
5. Culpepper, W. L., and Ableson, M.: J. Lab. & Clin. Med. **6**: 276 (Feb.) 1921.
6. I showed the dried records of the last twenty families examined in my recent heredity study (Medicolegal Application of Human Blood Grouping, J. A. M. A. **78**: 873 [March 25] 1922), all mounted on cardboard, to bring out the family relationships, at the meeting of the American Association of Immunologists in Washington, May 1, 1922. These are now deposited with Prof. T. H. Morgan in the department of zoology at Columbia University.

as the equivalent of agglutination in assigning the group. When hemolysis occurs, agglutination can nevertheless be demonstrated, either by first inactivating the serum and washing the red cells or by keeping the test from the start at icebox temperature.

The chief danger is partial hemolysis combined with weak agglutination, in which case the two can obscure each other.

Incubation at 37 C.—Because it favors hemolysis, incubation in a warm atmosphere should not be practiced.

Drying.—Nonspecific agglutination, due probably to increased salt concentration, can occur if the mixture is allowed to become partly dried. This is easily avoided by ending the observations in ten, or at most fifteen, minutes.

It is possible, although I have not seen it happen, that, if test serums are kept in open tubes, they may in time become sufficiently concentrated to produce this false agglutination. As Karsner and Koeckert[7] have shown, the use of dried and then redissolved serum is to be condemned.

Settling of Cells.—This is one of the commonest sources of mistakes. It can occur with any method. The cells settle to the bottom in a compact sheet, which, if only slightly stirred, looks like massive agglutination. The remedy is thorough mixing before results are read; this will make a smooth emulsion of merely settled cells, while it will accentuate real agglutination.

Use of the Microscope.—The microscope is, in my opinion, a source of error. Rouleaux formation is sometimes hard to distinguish from fine agglutination. In every instance in which the doubt has been raised by microscopic examination and settled by examination of the person's serum as well as cells, the naked eye observation has proved correct, the microscopic, confusing.

Too Thick a Cell Emulsion.—The red cells do not need to be washed for agglutination tests (unless hemolysis is also to be tested for). Unless blood is drawn from a vein in order to get serum, the emulsion is most easily obtained by pricking the finger and expressing about 5 drops of blood into a cubic centimeter of 3 per cent. sodium citrate. The emulsion should be diluted with 0.9 per cent. saline solution to about 2.5 per cent. strength, i. e., about half as dense as the sheep-cell emulsion ordinarily used in the Wassermann test. If the emulsion is much too dense, some of the cells may remain unagglutinated and mask the agglutination of the others. I pointed this out in 1911,[8] and I have seen actual mistakes in transfusion cases due to this fact.

Undeveloped Group Characters.—The group characteristics are not fully developed in all young infants. Occasionally they are imperfectly developed in older children. (This has no relation to the so-called "subgroups" which have been claimed to exist on the basis of posttransfusion reactions, but for whose existence there is no real evidence.)

On account of this possibility of undeveloped group characters, the serum as well as the cells must be examined in children and, in all cases of doubt, in adults. It is also on this account that it is so essential to repeat the tests if a second or third transfusion is done in a child.

Auto-Agglutination.—This is an exceedingly rare phenomenon. It occurs only at a low temperature. It is easily detected and ruled out as a source of error if only the possibility of its occurrence is kept in mind. It is on account of this that the control test of a drop of cell emulsion with saline solution, or, if possible, with a drop of the patient's own serum, should always be examined.

HOW TO AVOID INCLUDING CASES OF ILLEGITIMACY WHEN COLLECTING DATA ON HUMAN HEREDITY

No one knows how common or rare secret illegitimacy is. There is no absolute method of preventing the accidental inclusion of an illegitimate child or even of a family of such children in statistics on heredity. This is one of the difficulties of the study of human heredity. The best resource which I can suggest is the following rule: No family should be examined until the mother fully understands the object of the examination. If she then makes any objection, no matter on what grounds, the examination should not be made, or the results should not be considered.

LITERATURE OF THE QUESTION OF HEREDITY

The present communication is written as the result of the recent articles of Buchanan.[2] In these articles, Buchanan, aside from his claims as to his own work, makes so many misleading statements concerning the literature that it would be unfair to readers if I omitted to correct him.

Thus, he tries to convey the impression that authors other than himself have failed to confirm the hereditary nature of the blood group. He says:

> The interesting studies of Learmouth show that the old theory of the two specific substances for the blood group and the mendelian inheritance of the blood are at variance. The blood group is either not hereditary or the laboratory experiments concernings the specific substances responsible for the blood groups are being misinterpreted.

Actually Learmouth,[3] both in general and in specific detail, comes to exactly the opposite conclusion, agreeing precisely with me—or rather I with him, since his article preceded my recent one.

Learmouth had forty families with 101 children, 181 persons in all. There was only one exception, a Group II child from Group I parents; and he himself suggests illegitimacy as the explanation.

Regarding this exception, I cannot do better than quote Keynes,[9] who says, with regard to it:

> There are three possible explanations of this: (1) The observations were at fault; (2) the putative father was not the real father; (3) the mendelian theory of inheritance is wrong. The mendelian theory is established on so firm a basis that, in the absence of more numerous exceptions, (3) may be rejected. There is no reason for supposing that the observations were inaccurate; and we are therefore brought to the conclusion that in such a case the child is illegitimate.

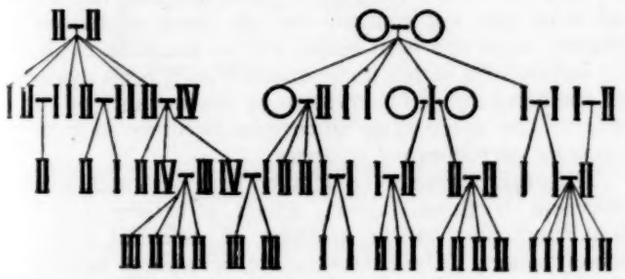
Keynes himself contributes another family of fifty-nine persons in four generations. It does not show any variation from the results that were to be anticipated. As the family is the largest yet recorded, I reproduce the pedigree in the accompanying chart (reversing the I's and IV's to correspond to the Jansky terminology).

7. Karsner, H. T., and Koeckert, H. L.: Influence of Desiccation on Human Normal Isohemagglutinins, J. A. M. A. **73**: 1207 (Oct. 18) 1919.
8. Ottenberg, Reuben: J. Exper. Med. **13**: 425 (April) 1911.
9. Keynes, Geoffrey: Blood Transfusion, Oxford Medical Publications, 1921, p. 90.

Buchanan says further:

> My findings are in accordance with the results of studies of the blood group in families that have been published.

Far from this being true, Buchanan's findings flatly contradict those of every other author who has written on the subject—of von Dungern and Hirschfeld,[10] in Heidelberg; Jervell,[11] in Christiania; Learmouth,[3] in Liverpool; Keynes,[8] in Oxford; Weszecsky,[12] in Czeckoslovakia; Tebbutt and McConnel,[13] in Australia, and myself,[6] in New York.



Keyne's family, fifty-nine individuals, tested in four generations. Circles represent persons who could not be examined.

As it is incredible that a law of heredity which holds true in almost a thousand cases and in such diverse places should not hold in Minnesota, and improbable that Buchanan should have encountered so large a number of illegitimacies, it follows that his wrong conclusions must rest on his own mistakes.

One other misleading statement of Buchanan's must be mentioned. He says:

> The incorrectness of the statement of Ottenberg that he could foretell the parents by studying the children resulting from unions of Groups IV and I is shown in the seventy-second family of von Dungern and Hirschfeld, the twenty-ninth and thirty-eighth families of Learmouth, and the Tink family of my own investigation.

Of course, I never made any such statement. The one instance in which I foretold—and correctly—the group of the father after knowing that of mother and children is described in my recent article clearly enough that anyone should understand it. Buchanan's choice of instances from Learmouth and from von Dungern and Hirschfeld is peculiarly unfortunate, since by coupling their cases with his own Tink family he suggests that their families, like his, are anomalous. This is not the case. Learmouth's twenty-ninth family consists of parents in Groups I and IV and six children in Group IV, his thirty-eighth family, of parents also in Groups I and IV and four children in Group IV. Von Dungern and Hirschfeld's seventy-second family consists of parents in Groups I and IV, three children in Group IV and one in Group I. These all conform to the laws of heredity as first fully described by von Dungern and Hirschfeld.

Buchanan fails to understand that, from the nature of the case, it is never possible to say from the children alone what the parents must be; but, knowing the children and one parent, one can sometimes state what the other parent must be.

10. Von Dungern and Hirschfeld: Ztschr. f. Immunitätsforsch. u. exper. Therap. **6**: 284, 1910.

11. Helsingfors Letter, J. A. M. A. **77**: 1668 (Nov. 19) 1921.

12. Weszecsky: Biochem. Ztschr. **107**: 159, 1920. The author concludes that the mendelian inheritance described by von Dungern and Hirschfeld holds, but his charts present two anomalous cases.

13. Tebbutt, A. H., and McConnel, S. V.: M. J. Australia **1**: 201 (Feb. 25) 1922.

The instances in which it is possible to predict the remaining parent, (the children and one parent being known), are implied, but not tabulated, in my previous papers. They are presented in the accompanying table.

In making such predictions, children of Group I are disregarded since, showing only recessive qualities, they can arise from any combination of parents. Thus, if additional children of Group I occurred in any of the foregoing families, the prediction as to the remaining parent would not be altered. If the reader wishes to amuse himself by studying the appended family of Keynes, he will find that there are eight cases in which the one parent being suitably chosen as known, and the children being known, it would have been possible to make a correct prediction as to the other parent. The same is true of the two families of Learmouth and the one of von Dungern and Hirschfeld cited above.

SUMMARY

1. The best technic for the tests is the open slide method.

2. The sources of error are: (1) deteriorated serums; (2) weak serums; (3) hemolysis; (4) incubation at 37 C.; (5) drying; (6) settling of cells; (7) microscope observation; (8) dense cell emulsions; (9) undeveloped group characters, and (10) auto-agglutination.

3. On account of these, the following precautions must be observed: (*a*) Every test must be done in duplicate, using different sets of test serums. (*b*) Test serums must be shown to be active at the time of the tests. (*c*) Wherever there is the possibility of doubt, both serum and cells of the individual must be tested. (*d*) The cell emulsion without addition of test serum must also be examined.

4. In studies of human heredity, the accidental inclusion of cases of illegitimacy can best be avoided if the mother of each family fully understands the object of the examinations and consents to them.

5. Buchanan's failure to confirm the hereditary nature of the blood groups is apparently the result of errors of observation. He disagrees with all other authors, who are unanimous in their findings and have recorded almost a thousand cases.

15 West Eighty-Ninth Street.

PREDICTION OF REMAINING PARENT GROUP

Known Children in Group	One Parent Known to Be in Group	The Other Parent Must Be in Group
II	I	II or IV
II	III	II or IV
III	I	III or IV
III	II	III or IV
IV	I	IV
IV	II	III or IV
IV	III	II or IV
II and III	I	IV
II and III	II	III or IV
II and III	III	II or IV
II and IV	I	IV
II and IV	II	III or IV
II and IV	III	II or IV
III and IV	I	IV
III and IV	II	III or IV
III and IV	III	II or IV
II, III and IV*	I	IV
II, III and IV	II	III or IV
II, III and IV	III	II or IV

* This combination of children (II, III and IV) has not yet been described in the literature. Its occurrence would depend on occasional "crossing" in the chromosomes, as was pointed out to me by Dr. M. Gichner of Baltimore.

ESSENTIAL VASCULAR HYPERTENSION

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Vascular hypertension, according to our present day conception, is found in one group of individuals who have demonstrable pathologic lesions. These lesions when discovered are usually of the atherosclerotic type. The greatest damage caused by these lesions occurs in the brain, in the heart and in the kidneys.

Vascular hypertension occurs in another group of individuals in whom all the diagnostic methods of today fail to reveal which organ is at fault. This type of case has been designated essential vascular hypertension.

Since the etiology of hypertension is an unsolved problem, it is our duty to continue its discussion. This paper deals with some etiologic factors in the life history of these patients, and above all is an attempt to show there is a continuity in this disease, from the early to the later life of the individual. Essential vascular hypertension is not a spontaneous occurrence. During the last three years, a number of illuminating and interesting discussions from the standpoint of the clinician and pathologist have appeared in the American literature. Among them is that of Moschcowitz,[1] Ringer,[2] Hopkins,[3] Riesman,[4] Piersol[5] and Mosenthal.[6]

Moschcowitz, in 1919, after a complete review of the literature and his own careful studies, concludes, first of all, that essential vascular hypertension is not the result of arteriosclerosis or nephritis; and, secondly, that arteriosclerosis itself may be the product of a persistent hypertension or of the same cause which brings on hypertension. In adopting these views, he accepts the position of Clifford Allbutt.[7] Ringer,[2] in 1921, stated his belief that every case of hypertension is potentially nephritic. Allbutt, in 1903, described the group in which hypertension is the primary disease and nephritis secondary. Hopkins,[3] in 1919, described a type of hypertension developing in women at the time of menopause. Riesman,[4] in the same year, described a type of hypertension occurring in women, based on some endocrine disturbance, not improbably arising in the ovary and occurring about the time of menopause. Pawinski,[8] in 1905, described the hypertension as well as the hypotension which occurs in women at the menopause.

We may well say, then, that the best views of today are also the views of from fifteen to twenty years ago. This standstill in the knowledge of a disease, the etiology of which is admittedly unknown, is, to say the least, not satisfactory. It is of interest to note that, so far as the ultimate etiologic factors are concerned, Ringer,[2] in a discussion of nephritis, adopts the views of Professor Stockard of Cornell that every person dies from the disease with which he is born. Having a predisposition which plays the greater rôle, infections and exposure are but the precipitating factors of the disease.

Moschcowitz[9] considers the direct etiology of hypertension unknown; and he gives a vivid description of a type of individual in whom hypertension is likely to occur. Christian[10] considers essential hyptertension as having probably a variety of causes: remote infections, endocrine disturbance, disturbances due to the menopause, ovarian activity, thyroid activity, arteriosclerosis, nephritis, nervous disturbance, overeating and poisons.

Surveying the present day knowledge of this disease, which is based on a large number of accurate observations, I believe that we are nearer a satisfactory explanation of the development of hypertension than we seem to be at first glance. The fact that our views of today are not contradictory to those of fifteen to twenty years ago is in reality not so much an evidence of failure of a better understanding as it is an evidence of the accuracy of observation by the workers of those days. The work done since then becomes in a large measure corroborative evidence.

The observations to be detailed here deal with a combination of three factors which I believe play an important part in the etiology of essential vascular hypertension. These factors are hereditary tendency, the infections, and disturbances in the endocrine functions, as we know them today.

While I would not minimize the importance of other factors in the production of hypertension, this discussion will be limited to that group in which the triad mentioned is predominant.

HEREDITY

The factor of heredity is perhaps the predominant one in the hypertension group. In going over a list of forty patients in this group whom I have had under observation for a long time and whose records are complete in this respect, there were two instances only in which a positive history of cardiovascular disease was lacking in the immediate family. By immediate family, I mean brother, sister, parent and offspring.

In about half of these forty cases, my observations were made on brothers and sisters, and in the others on parent and offspring.

In some instances, the observations were made on three generations, all showing distinct cardiovascular inferiority. We may well look on heredity as the dominant predisposing factor.

ACUTE INFECTIONS

In surveying the preceding history of all cases in this group, the infections both acute and chronic occupy a prominent place. The parts played by infection and by hereditary influence are not easily differentiated. One frequently observes a greater susceptibility to infection in children of parents who suffered from chronic infections. Such children develop the throat infections and show a lowered vasomotor tone. When one is careful as to the anamnesis of his patients, he will be much impressed by the fact that, while some individuals have suffered nearly all of the acute infections, there are many who have escaped most of them, this being due not to mere chance but to an inherited immunity.

Table 1 corroborates the findings of many observers as to the occurrence of previous infections. It is based on the history of sixty-eight cases of vascular hypertension. The etiologic importance of infections in that class of cases in which hypertension occurs has been

1. Moschcowitz, Eli: Am. J. M. Sc. **158**: 668 (Nov.) 1919; Hypertension with Minimal Renal Lesions, J. A. M. A. **77**: 1075 (Oct. 1) 1921.
2. Ringer, A. I.: Am. J. M. Sc. **161**: 798 (June) 1921.
3. Hopkins, A. H.: Am. J. M. Sc. **157**: 826 (June) 1919.
4. Riesman, David: Hypertension in Women, J. A. M. A. **73**: 330 (Aug. 2) 1919.
5. Piersol, G. M.: M. Clin. N. A. **5**: 705 (Nov.) 1921.
6. Mosenthal, H. O.: M. Clin. N. A. **5**: 1139-1160 (Jan.) 1922.
7. Allbutt, Clifford: Med. & Chir. Soc. **86**: 1903; Brit. M. J., Oct. 20, 1906; Diseases of the Arteries Including Angina Pectoris, London, 1915.
8. Pawinski, J.: Rev. de méd. **25**: 125-219, 1905.
9. Moschcowitz, Eli: Footnote 1, first reference.
10. Christian, H. A., and Mackenzie, James: The Oxford Medicine, 1920.

pointed out for many years by Allbutt,[11] Ophüls,[12] Jores,[13] Thayer,[14] Adami,[15], Klotz [16] and others. While those convalescent from acute infectious diseases seem to recover without visible after-effects, their subsequent history indicates that these diseases are not without remote sequelae. In a previous communication,[17] on the etiology of cardiovascular affections, a definite relationship was established between cardiac involvement and a preexisting typhoid fever, tonsillitis, diphtheria, pneumonia and rheumatism. It is perfectly obvious that a similar relationship can exist here.

TABLE 1.—HISTORY IN SIXTY-EIGHT CASES OF VASCULAR HYPERTENSION

	No. of Cases
Typhoid	28
Tonsillitis (recurring)	16
Scarlet fever	9
Diphtheria	8
Rheumatic fever	5
Malaria	5
Syphilis	3

CHRONIC INFECTIONS

The long-continued infections surmounted by acute exacerbations are without a doubt also responsible for remote effects. In discussing the effects of chronic infection, I shall bring evidences to bear showing a continuity in the disease process, which begins early and continues through life, going through the period of childhood, adolescence and middle life, and altering the individual both physically and mentally.

TABLE 2.—SYMPTOMS IN TONSIL-THYROID SYNDROME (ARRANGED ACCORDING TO FREQUENCY)

Chronic tonsillitis (hypertropic)	Obesity
Tonsillar node	Tendency to sterility
Thyroid gland enlarged (colloid or adenomatous goiter)	Hands moist, cold, cyanotic
Leukopenia, lymphocytosis	Hypersensitive to cold
Complexion pasty and sallow	Blood pressure low, pulse slow
Low basal metabolism	Tongue thickened and tooth marked
Skin dry, hair dry	Speech thick and voice coarse
Breast, excessive development	Puffiness of eyes, eyelids swollen in morning
Menstrual function disturbed	Alopecia, nails brittle
Subcutaneous tissue thickened	Neuralgias

ENDOCRINE DISTURBANCES

On account of involvement of the endocrines, the clinical picture manifests itself differently in the sexes. I shall, therefore, discuss them under the headings of female and male.

In the Female.—Up to Middle Life: In a previous communication,[18], there were reported a series of twenty-five cases of chronic tonsillar and throat infections, with large thyroid glands and typical manifestations of dysthyroidism. The patients ranged from 15 to 35 years of age. All had large diseased tonsils and infected cervical glands; nearly all had large thyroids (colloid or adenomatous goiter), obesity, menstrual disorders, subnormal basal metabolism and such physical and mental disturbances as characterize definitely the state of hypothyroidism. They presented a picture of chronic infection associated with endocrine disturbances.

How this is manifested clinically is illustrated by the following case:

Mrs. A., who had a fatal case of hyperthyroidism, and whose sister had exophthalmic goiter, had two daughters: one, now 20, had diseased tonsils removed at the age of 3, and at the present time was in normal good health; the other, aged 16, had large tonsils, enlarged cervical lymphatic glands, a very large colloid or adenomatous goiter, low basal metabolism, leukopenia and low blood pressure and pulse.

Whether chronic infection impoverishes the organism of iodin, and this leads to colloid or adenomatous goiter, cannot be answered to the satisfaction of all at this time. Marine believes that this is precisely what does occur. That chronic infection and dysthyroidism is capable of and does set up profound constitutional disturbances is to be seen in the life history of these individuals. Of twenty-nine patients in the tonsil-thyroid series, twenty-two were married. Of these, eight were sterile, ten had but one child, four had two, and none had more than two children.

TABLE 3.—REPRODUCTION IN TONSIL-THYROID CASES

Total number of patients	29
Married	22
No children	8
1 child	10
2 children	4
3 children or more	0
7 unmarried past the age of 30	

After Middle Life: On reviewing the history of a series of thirty-five cases of essential hypertension in women after middle life, I was much impressed with the reproductive history. After all, the ability to reproduce is a strong evidence of the normality of the female. In these thirty-five cases, as is shown in Table 4, reproduction is at a very low level, indicating a constitutional disturbance.

These thirty-five cases of vascular hypertension presented distinct evidences of what we recognize clinically as dysthyroidism. About half of them presented evidences of hypothyroidism; while the other half showed some indications of hyperthyroidism. The observations in this class of cases have not extended over a sufficient length of time to justify one in saying that they go through both stages of thyroid activity. I have at present quite a number of female patients who received prolonged courses of medical treatment for goiter, ten or twenty years ago, and who now suffer from vascular hypertension. Plummer estimates that it is seventeen and one-half years from the time of the colloid goiter to the hyperthyroidism.

TABLE 4.—REPRODUCTION IN THIRTY-FIVE WOMEN WITH VASCULAR HYPERTENSION

Married	30
No children	12
Premature births	2*
One child	5
Two children	6
Three children	3
More than three	2
	30

* Nonsyphilitic.

In comparing the two groups described above, the married women of the tonsil-thyroid group and the married ones in the essential vascular hypertension

11. Allbutt, Clifford: Footnote 7, first reference.
12. Ophüls, William: Subacute and Chronic Nephritis as Found in One Thousand Unselected Necropsies, Arch. Int. Med. **9**: 156 (Feb.) 1912; Etiology and Development of Nephritis, J. A. M. A. **69**: 1223 (Oct. 13) 1917.
13. Jores, L.: Deutsch. Arch. f. klin. Med. **94**: 1, 1908.
14. Thayer, W. S.: Southern M. J. **10**: 367 (May) 1917.
15. Adami: Brit. M. J., Dec. 22, 1906.
16. Klotz: Am. J. Med., December, 1919.
17. Barach, J. H.: Etiology of Cardiovascular Affections, J. A. M. A. **76**: 1211 (April 30) 1921.
18. Barach, J. H.: Tonsil-Thyroid Syndrome in the Female, New York M. J. **114**: 648 (Dec. 7) 1921.

group, we find points of striking similarity. In the first group, there is a history of chronic infection followed by evidences of dysthyroidism and disturbances of other endocrine functions sufficient to cause a reduction in fertility. In the second, we find the history of a severe acute infectious disease or a chronic infection. In this group, evidences of dysthyroidism are also present; half of them have symptoms suggesting hypothyroidism, while the other half shows evidences of hyperthyroidism. Both groups have in common the history of a preceding infection, endocrine disturbances and a tendency to sterility. In the younger group, it is not manifest; in the patients beyond middle life, essential vascular hypertension is present. Perhaps when more is known about the involuntary nervous system, we may be better able to classify some of the bizarre endocrine disturbances.

TABLE 5.—NEUROCIRCULATORY ASTHENIA (EFFORT SYNDROME)

Delicacy in childhood	Fainting, giddiness
Weakness	Headache
Fatigue	Tremor of hands and legs
Early exhaustion	Sweating of hands, axilla, feet
Precordial pain	Cyanosis of extremities
Palpitation	Blood pressure elevation, temporary
Pulse acceleration	Preference for light work
Extrasystole	

In the Male.—Whereas, in the female, chronic tonsillar and upper respiratory infections as described produce a picture of dysthyroidism, in the male, as indicated in a previous communication,[18] the result is entirely different.

Chronic tonsillar and upper respiratory infection in the male is found associated with the clinical picture of neurocirculatory asthenia, or effort syndrome. I was much impressed by this fact when I found a brother and sister of nearly the same age having diseased tonsils. In that case, the girl will show dysthyroidism of the type described, while the boy will present a typical case of neurocirculatory asthenia. This divergence in the pathologic physiology of a disease is of great interest. Here, it accounts for the fact that in goiter clinics there are ten times as many female as male patients.

Neurocirculatory asthenia, or effort syndrome, is essentially a disease of civillian life. Its discovery by the army officer was for one purpose only; to insure such an individual against exposure to physical or nervous strain. The individual with this syndrome is a constitutional inferior. As seen in these cases, neurocirculatory asthenia occurs in a person who is the product of a bad heredity plus severe or oft-repeated infection. This type of patient finds his way to the cardiac clinics and, in their present nomenclature, his case is classified as "potential cardiovascular," which is entirely correct. The syndrome in these male patients is unmistakable. When they are not exposed to undue strain, the symptoms complained of are mainly subjective, and of varying degrees of severity. They show an inability to perform arduous labor, and they are breathless after sustained physical effort. The most frequent symptoms are precordial pain, dizziness, profuse perspiration, cyanosis, and sweating of the extremities, and there are other evidences of an inefficient circulatory system.

For a time, this class of patients was considered as suffering from hyperthyroidism; but this seems to have been disproved. Nevertheless, they do show evidences of some endocrine or autonomic disturbance.

That infection plays a prominent antecedent rôle in neurocirculatory asthenia is believed by many observers. Swan,[19] in a series of ninety cases, found a demonstrable infection present in 87 per cent.

Thomas Lewis,[20] whose studies of effort syndrome (neurocirculatory asthenia) in recent years were the first and also the most complete, places infection of one kind or another as the dominant factor. Of 558 patients, about 80 per cent. had suffered from severe infection.

In youth and early adult life, vascular tension in persons with neurocirculatory asthenia is about normal. There is a constant tendency, however, for the blood pressure to go high under physical and nervous stimuli. This was pointed out by Sir James McKenzie and R. M. Wilson.

Patients giving a history of neurocirculatory asthenia when young and of hypertension in middle life constitute, in my experience, the larger proportion of the essential vascular hypertension group. This group of cases serves as a connecting link between the infections of early life, which are followed by neurocirculatory asthenia, and the hypertension of later life, which is preceded by neurocirculatory asthenia.

Neurocirculatory asthenia occurs most typically in the first three decades. During middle life, when the patient's nutrition and general well-being is at its height, the neurocirculatory asthenia as a whole may be masked.

During this phase, we find the man who, although very delicate in youth, has put on considerable weight, has to all appearances improved in health, and has taken a great hold on his occupation working at it with vigor and force. The work of his choice is seldom physical. It is mental energy that he expends so lavishly. He avoids effort and exertion, not because of a perverted mental attitude but because of a physical incapacity for that effort. This is the type of person whom we find with essential vascular hypertension after middle life. As I see him, he is the type whom Moschcowitz[9] describes as the candidate for hypertension:

> The patients are overweight, sometimes obese. Physically, these people are tense and irritable. Their interest outside their business is desultory. In their leisure hours, they play cards, sit in the theater, read the newspaper, or rehearse the business activities of the day. It is the picture of the tired business man. He eats well, drinks alcohol and takes no exercise. He is successful, he may be said to die of success. He has an incapacity for play, he is physically old.

TABLE 6.—ARTERIAL HYPERTENSION (100 CASES)

	Females	Males
Essential hypertension	33	25
Nephritis with hypertension	14	16
Cardiovascular lesion with hypertension	3	9
	50	50

A careful study of the life history of this individual reveals the fact that he suffered from neurocirculatory asthenia in his youth. Because of his effort syndrome, he finds escape from the physical hardships of life by using his brain. He submerges himself in work. The particular type described by Moschcowitz is the product of a metropolis. The same person, with local coloring, is seen in the provincial atmospheres and in the country.

19. Swan, J. M.: Analysis of Ninety Cases of Functional Disease in Soldiers, Arch. Int. Med. **28**: 586 (Nov.) 1921.
20. Lewis, Thomas: The Soldier's Heart and the Effort Syndrome, New York, Paul B. Hoeber, 1919, p. 33.

Occasionally, we find him taking exercise for his health. Once he discovers the stimulation and exhilaration which comes with exercise, and overcomes to a certain extent his innate dislike for it, he frequently becomes a "nut" on his hobby. In a little while, however, he will have applied so much of his mental intensity to the sport that he defeats the very object of it, thus reestablishing the former vicious circle, and hurrying on the vascular hypertension, which is awaiting him.

Such is the road leading to essential vascular hypertension in the male: heredity, severe acute or chronic infection, and disturbance in the endocrines or autonomic vascular control producing that circulatory disturbance known as neurocirculatory asthenia.

DIFFERENTIAL DIAGNOSIS

The relative frequency of this type of hypertension is well illustrated in Table 6, which is based on the last 100 unselected cases in my private practice.

The predominance of essential hypertension among women and of the vascular type in men is noteworthy. Of the thirty-three females, all but three belong distinctly to the dysthyroid group. Among the males, of twenty-five cases of essential hypertension, all but six belonged definitely to the neurocirculatory asthenia type.

The grouping of these patients cannot be accurately made without a complete survey of the life history, as well as a careful consideration of all the clinical evidences in the case. Of the fifty-eight cases of essential vascular hypertension, forty-nine conformed completely to the course of the disease as described.

In the segregation of nephritis and essential hypertension it is of great importance that it be carefully done, with clinical acumen and judgment. The mere presence of albuminuria is no criterion; nor is cylindruria or nocturnal polyuria. Many times I have seen these three disappear after hypertension was reduced and a normal circulation reestablished. Fixation of specific gravity, of urea and salt elimination, permanent nocturnal polyuria, low phenolsulphonepthalein elimination and such clinical evidences as edema are decisive. Biochemical examination of the blood, one or more times in almost every one of these cases, was the least helpful toward a reasonably early diagnosis of nephritis. Aside from the blood pressure readings, the diagnosis of nephritis depends on positive findings; while the diagnosis of essential vascular hypertension depends more on the absence of those findings.

COURSE AND SEQUELAE OF ESSENTIAL HYPERTENSION

Essential vascular hypertension is not a spontaneous occurrence. It may be discovered unexpectedly, but it does not come on suddenly. Vascular hypertension occurs for brief periods as a physiologic response, for many years before it becomes permanently established. Once arterial hypertension is permanently established, it continues for a variable time. Prognosis in essential vascular hypertension is a hazardous undertaking on the part of the physician. The life of the individual with vascular hypertension does not depend on the degree of hypertension: it will be determined by the organ inferiority of that individual. This organ inferiority manifests itself by a decompensation or "break" in the heart, in the kidneys, or in the brain. Which organ will suffer decompensation first is determined by an inherited tendency and by the remote effects of previous infections [17] and injury. A person who has suffered a severe course of typhoid fever or meningitis with severe delirium, or has undergone a terrific mental strain, will show cerebral decompensation. A person who has had pneumonia, rheumatic fever or diphtheria, during which the myocardium was injured, will have a cardiac decompensation. The one who has had severe scarlet fever, repeated tonsillar infections or exposure with renal complications will, when the time comes, show renal failure, with all of its manifestations.

SUMMARY

1. The conception of some of the early writers as to the etiology of essential vascular hypertension is corroborated by the evidences of today.

2. There are three prominent factors in the etiology of most of the cases of essential vascular hypertension: heredity, infection and endocrine disturbance.

3. These factors affect the male and the female differently. In the male, cases of essential hypertension give a history of an inherited tendency, systemic infection, neurocirculatory asthenia and vascular hypertension after middle life. In the female, there is a history of heredity, infection and endocrine disturbances involving the thyroid and generative system; and there is a tendency to dysthyroidism, sterility and vascular hypertension at the menopause and thereafter.

4. The course and sequelae of essential vascular hypertension will be determined by the organ inferiority of the individual. The organ inferiority is determined by heredity, previous infection and strain.

Jenkins Building.

A BIOLOGIC MECHANISM OF HUMAN ISOHEMAGGLUTINATION

THE CONSTITUTION OF THE BLOOD GROUPS AND THE INHERITANCE OF THE AGGLUTINOGENS

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In his two communications on the medicolegal application of the blood groups, Buchanan [1] casts serious doubt on the present structure of knowledge concerning the mechanism of human isohemagglutination and the transmission in heredity of this function of the blood, and questions hypotheses that have long stood unchallenged. We are therefore called on to reexamine these hypotheses and to test their validity against observable phenomena.

CONSTITUTION OF THE BLOOD GROUPS

It is generally admitted, certainly by all the parties to the present controversy, that human individuals, classified with reference to the agglutinating power of their blood serum toward human red blood cells and the agglutinability of their red blood cells by human serums, fall into four groups. The following classification and description of the groups, adopted by the joint committee reporting in THE JOURNAL,[2] will be followed in the present discussion:

Group I. The serum agglutinates the cells of Groups II, III and IV. The cells are agglutinated by no serum.

Group II. The serum agglutinates the cells of Groups III and IV. The cells are agglutinated by the serums of Groups I and III.

1. Buchanan, J. A.: Medicolegal Application of the Blood Group, J. A. M. A. **78**: 89 (Jan. 14) 1922; **79**: 180 (July 15) 1922.
2. Isohemagglutination, J. A. M. A. **76**: 130 (Jan. 8) 1921.

Group III. The serum agglutinates the cells of Groups II and IV. The cells are agglutinated by the serums of Groups I and II.

Group IV. The serum agglutinates no cells. The cells are agglutinated by the serums of Groups I, II and III.

In recorded blood examinations of more than 20,000 cases, no exceptions to this grouping have appeared. The only source of error is the existence of Group III bloods in which the agglutinating power of the serum is so weak that unusual care must be used to demonstrate it.

In 1920, Koeckert [3] published these observations:

(*a*) If the serum of Group I is treated with the cells of Group II, the mixture centrifuged, the supernatant fluid drawn off and the process repeated, a point will be reached at which the serum will be found to have lost the property of agglutinating Group II cells. This serum will still agglutinate the cells of Group III and of Group IV. If now this serum is treated with the cells of Group III, a point will be reached at which the serum will be found to have lost the power of agglutinating not only Group II and Group III cells, but also Group IV cells.

(*b*) All the agglutinating power of Group I serum may be removed by treating it, as in *a*, with first Group III and then Group II cells; by treating it with a mixture of Group II and Group III cells, or by treating it with Group IV cells.

(*c*) All the agglutinating power of Group II serum may be removed by treating it, as in *a*, with Group III or with Group IV cells. All the agglutinating power of Group III serum may be removed by treating it with Group II or with Group IV cells.

(*d*) If the cells of Group IV are treated with the serum of Group II, the resulting mixture centrifuged, the cells separated by shaking and resuspended in salt solution and the process repeated, a point will be reached at which the cells will be found to have lost the power of being agglutinated by Group II serum (i. e., the power of removing the agglutinating power from Group II serum). These cells will still be agglutinated by Group III and by Group I serum. If now these cells are treated with Group III serum, a point will be reached at which the cells will be found to have lost the power of being agglutinated not only by Group II and Group III serum, but also by Group I serum.

(*e*) All the power of Group IV cells to be agglutinated by human serums may be removed by treating them, as in *d*, with first Group III and then Group II serum; by treating them with a mixture of Group II and Group III serums, or by treating them with Group I serum.

(*f*) All the power of Group II cells to be agglutinated by human serums may be removed by treating them, as in *d*, with Group III or with Group I serum. All the power of Group III cells to be agglutinated by human serums may be removed by treating them with Group II or with Group I serum.

These findings have since been confirmed in detail by Hooker and Anderson.[4] But one need not go to the literature for confirmation. The experiments here described have formed the material of countless lecture demonstrations and laboratory exercises in courses on serology and immunology in our medical schools. They are easy to perform, and the necessary materials are not far to seek. I have myself repeated all of these experiments, and have obtained identical results.

We thus observe a power in human red blood cells to be agglutinated by appropriate human serums, and a power in human serums to agglutinate appropriate human red blood cells. This power we observe to be specific (only appropriate cells and appropriate serums reacting), and to be quantitatively limited. To this power of the serum we give the name of "agglutinin," to this power of the cells the name of "agglutinogen." Whether agglutinin and agglutinogen are actual demonstrable substances is, for the purposes of the present discussion, beside the point.

To explain the mechanism of human isohemagglutination, we must assume the existence either of two agglutinins and two agglutinogens, or of three agglutinins and three agglutinogens. If we assume three of each, there are three possible ways in which they may be distributed among the several groups; if we assume two of each, there is only one possible distribution.

TABLE 1.—DISTRIBUTION OF AGGLUTINOGENS AND AGGLUTININS*

Hypothesis 1			Hypothesis 2		
Group	Cells	Serum	Group	Cells	Serum
I	—	abc	I	—	a
II	A	bc	II	AC	b
III	B	ac	III	AB	c
IV	C	—	IV	ABC	—
Hypothesis 3			**Hypothesis 4**		
Group	Cells	Serum	Group	Cells	Serum
I	—	abc	I	—	ab
II	A	b	II	A	b
III	B	a	III	B	a
IV	ABC	—	IV	AB	—

* Any combination of cells and serum wherein the same symbols, capital and small, come together, will result in agglutination. Example: In Hypothesis 1, Group I serum is represented by the symbols abc, Group IV cells by the symbol C. Group I serum agglutinates Group IV cells; the combination Cc occurs. Hypotheses 1 and 2 were advanced by Moss (Bull. Johns Hopkins Hosp. **21**: 63 [March] 1910).

These are charted in Table 1. The specific agglutinogens are here represented by capital, the specific agglutinins by small letters.[5] It will be apparent that these diagrams represent all the possibilities; any further elaboration would result only in a useless reduplication of symbols.

In examining these diagrams (Table 1), it will be seen that if Hypothesis 1 were true, the treatment of Group I serum with Group II and Group III cells, as in *a* and *b* of Koeckert's experiments, would leave the resulting serum still capable of agglutinating Group IV cells. This we know is not the case. Similarly, Hypothesis 1 fails to agree with the facts presented in *c*; Hypothesis 2 fails to agree with the facts presented in *d*, *e* and *f*, and Hypothesis 3 fails to agree with the facts presented in *a*, *b*, *d* and *e*. But Hypothesis 4 is in complete agreement with all the facts presented by Koeckert. Since of all the possibilities only one remains, and since this one satisfies all the facts, we can, I think, write Q. E. D. under the proposition that there are in human bloods two agglutinins and two agglutinogens, whereof Group I blood contains both agglutinins, Group IV blood both agglutinogens, and Group II and Group III blood one of each.

Buchanan [6] refuses to accept the hypothesis advocated above. Until he offers some alternative hypothesis consonant with all the facts, this refusal can have but little weight.

INHERITANCE OF THE AGGLUTINOGENS

The studies of von Dungren and Hirschfeld,[7] Ottenberg,[8] Learmouth,[9] Keynes [10] and Tebbutt and McCon-

3. Koeckert, H. L.: J. Immunol. **5**: 529 (Nov.) 1920.
4. Hooker, S. B., and Anderson, L.: J. Immunol. **6**: 419 (Nov.) 1921.

5. In the interests of uniformity, the A B a b terminology used by von Dungern and Hirschfeld and by Ottenberg and others is here followed.
6. Buchanan, J. A.: (Footnote 1, first reference).
7. Von Dungern and Hirschfeld, L.: Ztschr. f. Immunitätsforsch. u. exper. Therap., Orig. **4**: 284, 1910.
8. Ottenberg, Rueben: Medicolegal Application of Human Blood Grouping, J. A. M. A. **78**: 873 (March 25) 1922.
9. Learmouth, J. R.: J. Genetics **10**: 141 (Aug.) 1920.
10. Keynes, G.: Blood Transfusion, New York, Oxford University Press, 1922.

nel [11] on the heredity of the blood groups lead them to the conclusion that the specific agglutinogens never appear in the offspring unless they are present in the blood of one of the parents. They further find that agglutinins may appear in the offspring that are absent from the blood of both parents. Moreover, inspection of the classification and description of the blood groups appearing above will reveal that the absence of either agglutinogen always coincides with the presence of the corresponding agglutinin. Thus, what is really inherited is the presence or absence of the several agglutinogens; this presence is "dominant" and this absence "recessive," as defined by Mendel.[12] We have here two sets of unit characters; and man, in relation to his iso-agglutinogens and iso-agglutinins, is a dihybrid.

It is not easy, unless one cultivates a special facility for such work, to recall all the elements of a mendelian "pattern" of heredity, particularly of the heredity of two sets of unit characters. The accompanying two tables, Table 2, a diagram made on the checkerboard plan of Punnett,[13] and Table 3, a table of the phenotypes, or constitution of the somatoplasm, and genotypes, or constitution of the germ plasm, as defined by Johannsen [14] should be found helpful for keeping in mind what will happen if the iso-agglutinogens and iso-agglutinins of human blood follow a dihybrid mendelian formula.

A review of the tables published by von Dungern and Hirschfeld [7] and of those published by Ottenberg [8] shows the occurrence of all the genotypes predicated,[15] in the numerical proportion expected. These calculations of the expected occurrence of the several groups the German investigators published and relied on to form an important part of their proof. Ottenberg, to whose results a similar test can be applied, has not published these mathematical studies, apparently judging that the case is sufficiently strong without them, and that for the reader untrained in biometry such evidence would have little pertinence.

TABLE 2.—POSSIBLE COMBINATIONS OF THE UNIT CHARACTERS A, B (AGGLUTINOGENS) AND a, b (AGGLUTININS)*

Egg Gametes \ Sperm Gametes	AB	Ab	aB	ab
AB	AB / AB (IV)	Ab / AB (IV)	aB / AB (IV)	ab / AB (IV)
Ab	AB / Ab (IV)	Ab / Ab (II)	aB / Ab (IV)	ab / Ab (II)
aB	AB / aB (IV)	Ab / aB (IV)	aB / aB (III)	ab / aB (III)
ab	AB / ab (IV)	Ab / ab (II)	aB / ab (III)	ab / ab (I)

* The blood group of the individual resulting from each type of mating is given in parentheses.

It is on the foregoing facts that the hypothesis of the mendelian heredity of the iso-agglutinogens according to a dihybrid formula rests. Buchanan presents no facts out of agreement with this hypothesis, save in the case of the as yet unreported Tink family.[16] In his first paper, Buchanan speaks of one group as being "dominant" to another. Such a position could arise only from a complete failure to grasp the real significance of the work that has preceded his own entry into the field.

TABLE 3.—CONSTITUTION OF THE PHENOTYPES AND GENOTYPES *

	Phenotype; the Constitution of the Subject's Somatoplasm, as Determined by the Reaction of His Blood	Genotype; the Constitution of the Subject's Germ Plasm, as Determined by the Reaction of the Blood of His Offspring
Group I.....	ab	ab ab
Group II.....	Ab	Ab Ab Ab (a)b
Group III.....	aB	aB aB aB a(b)
Group IV.....	AB	AB AB AB (a)B AB A(b) A(b) (a)B

* Parentheses are used to distinguish those characters in the heterozygotes which are present in the germ plasm but are not to be found on examination of the blood.

SUMMARY

1. The hypothesis that there are two agglutinogens and two agglutinins responsible for the serologic behavior of the four groups of human blood is in complete agreement with the results of the absorption of agglutinin from the serum of the several groups, and of the saturation of the agglutinogen of the cells of the several groups, as demonstrated by Koeckert.

2. The hypothesis that the presence of the agglutinogens is always dominant and their absence always recessive rests on observations on 885 individuals constituting 191 families.

3. The hypothesis that the inheritance of the human iso-agglutinogens follows the mendelian formula for a dihybrid rests on:

(*a*) The existence of two different unit characters.

(*b*) The occurrence in nature of all the genotypes to be expected from a dihybrid mating.

(*c*) The occurrence of the phenotypes (blood groups) in the numerical proportion expected for the matings of the several genotypes.

4. The position of Buchanan arises from his failure to interpret properly the facts in relation to the mechanism of human isohemagglutination and the inheritance of the iso-agglutinogens.

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11. Tebbutt, A. H., and McConnel, S.: M. J. Australia **1**: 201 (Feb. 25) 1922.
12. Mendel, G. J.: Verhandl. Naturforsch. Verein in Brünn, **42**, 1865.
13. Punnett, R. C.: Mendelism, New York, Macmillan Company, 1911.
14. Johannsen, W.: Elemente der exacten Erblichkeitslehre, Jena, Fischer, 1909.
15. If two parents of the phenotype Ab (Group II) have offspring of the phenotype ab (Group I), the genotype of the parents must be Ab(a)b. Thus, from a study of two generations of a dihybrid mating, one can determine the genotype of the parents, if it is known which characters are dominant, and which recessive. Buchanan dissents from this view.
16. Buchanan, J. A.: (Footnote 1, second reference).

Early Medicine in Peru.—The first Peruvian protophysician was Dr. Hernando de Cepeda (1537), who resided at Ciudad de los Reyes. The Royal Office of the Protophysician was next established at Lima in 1569, its first president being Dr. A. Sánchez de Renedo. The first two chairs of medicine in the University of San Marcos in the early part of the sixteenth century were created through the efforts of Count de Chinchón, the viceroy, whose wife introduced quinin in Europe. Count de la Monclova created a chair of galenic medicine in 1691, and a chair of anatomy was founded in 1711. The protophysicians' office granted all licenses to practice. Physicians were divided into two classes, namely, classice surgeons, and practical surgeons. Some authors claim the existence of another group, bleeding surgeons.

SEASONAL HAY-FEVER

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The amount of work which has been done on the subject of hay-fever, and the voluminous literature which has accumulated so rapidly in the last few years, have done much to place the care of this disease on a satisfactory basis and to permit hay-fever to be classed, at last, as a curable disease. Those who have had most to do with this work are the first to admit that there is much yet to be learned and that the methods employed are not yet entirely perfected. Since no reports on this work have appeared from this locality, and because our findings do not in every particular parallel those reported by some observers, we are venturing to present the observations of the last two years, covering a series of ninety patients.

These patients have all been resident in northern Texas and, with one exception, within a radius of 100 miles of Dallas. Eighteen, or 20 per cent., of them developed the disease in other states, but all have had one or more attacks in this vicinity, and all have been under observation during their hay-fever season.

The percentage of the local population affected is not definitely known, but from our observation we believe that the number is certainly not less than 1 per cent.—the figure obtained by the American Hay-Fever Prevention Association. The summer temperature ranges high, warm weather persisting well into September. Summer humidity is variable, but rarely high. The winters are mild, freezing temperatures being infrequent. "Killing frosts" rarely occur until November. The growth and pollination of plants, therefore, extend over the greater part of the year, and, save from late October until early February, some pollen may always be found.[1] In spite of this fact, there have been found in this series only six vernal cases, and three combined vernal and autumnal; the other eighty-one (90 per cent.) have been of the typical autumnal type. This is far in excess of the percentage reported by Scheppegrell.[2] In 1,000 cases, he found 38 per cent. of the autumnal type and 42 per cent. of the combined vernal and autumnal. We are at a loss to account for this difference. That our figures actually represent, approximately, the relative frequence of vernal and autumnal cases in this locality, we do believe, for observation over a period of two years has shown surprisingly few cases during the spring months, a striking contrast to the large number seen in the fall.

The sexes have been fairly equally represented, there being 44 per cent. male and 56 per cent. female.

The age at onset has varied from infancy to 45 years. Grouped by decades, the percentage found in each decade is: from 1 to 10 years, 10; 10 to 20, 20; 20 to 30, 45; 30 to 40, 20, and 40 to 50, 5.

The duration of the disease has varied from one to twenty-eight years. No tendency to spontaneous recovery can be seen in the fact that 40 per cent. of this series had had the disease fifteen or more years.

Thirty patients (33⅓ per cent.) stated that father or mother, sister or brother had either hay-fever or asthma. In seventeen instances, the familial disease was hay-fever; in the remaining thirteen, asthma.

ETIOLOGY AND SYMPTOMS

As predisposing causes, three patients date the onset of their hay-fever to a summer in which they did much swimming, the first diagnosis being, in each instance, a nasal infection. Two relate their first attack directly to the ingestion of honey. In no others could any causal relationship be established. One patient states that he has a marked exacerbation of symptoms on eating watermelon during the hay-fever season. It can be eaten at other times without ill effect. One vernal case presents a similar condition, save that the offending material is, in this instance, wheat. This patient gave, in addition to the positive pollen reaction, a slight reaction to wheat proteose. Pollen injections given as a preseasonal prophylactic did not secure relief from symptoms until wheat was removed from the diet. The symptoms then immediately subsided. This patient takes wheat without restriction and without ill effect at all other times. This phenomenon has been mentioned by Walker.[3]

Thirty two per cent. of this series of patients stated that at some time during the season they had asthmatic breathing. Of these, 18 per cent. had only nocturnal dyspnea, while 14 per cent. claimed that difficult breathing occurred both day and night during at least part of the season. In two instances, the dyspnea was so severe as to justify the diagnosis of asthma. The pollen relationship had been entirely overlooked.

Of the nine patients showing vernal symptoms, five gave reactions to corn pollen, one to elm (*Ulmus americana*), one to white ash (*Fraxinus americana*) and two to cottonwood (*Populus angustifolia*). All those reacting to corn pollen gave histories of intimate exposure and of relief from symptoms by removal a very short distance from the flowering corn. A child who gave a typical cutaneous reaction to ash pollen secured relief in the subsequent season after the cutting down of a large ash tree in the yard. The symptoms in the four cases due to tree pollens fell within the period limited by the latter part of February and the early part of April. Three of the patients who were sensitive to corn reacted also to ragweed, and presented pictures of combined vernal and autumnal hay fever. Although this series is entirely too small to justify any conclusion, the entire absence of any grass pollen cases, save those due to corn, is interesting. The figures are also in decided contrast to the figures reported from other localities. We have seen no cases due to winter cedar, such as have been reported about Austin.

The autumnal cases, with striking uniformity, begin about August 20, and continue until early October. Three patients asserted that they had no symptoms until September 1. They gave only slight cutaneous reactions and were possibly only slightly sensitive, and reacted to atmospheric pollen only in relatively large amounts. Because of climatic conditions which caused late pollination in 1921, all patients were free of symptoms until September 1, following which they pursued their usual course. Three patients stated that their symptoms developed before August 15. These gave a history of exposure to dust or other respiratory irritant, which apparently produced a rhinitis, which, in turn, ushered in the hay fever. The symptoms from the two

1. The flora of this locality is described by Scheppegrell: Hay Fever and Asthma, Philadelphia, Lea & Febiger, 1922.
2. Scheppegrell (Footnote 1), p. 126.
3. Walker, I. C.: Frequent Causes and Treatment of Seasonal Hay-Fever, Arch. Int. Med. 28:71 (July) 1921.

conditions were not differentiated. Eight patients stated that they had, following their hay-fever season, a continued sneezing, with rhinorrhea, which persisted a variable length of time. In one instance, the first attack experienced had been preceded by much swimming and diving and, instead of clearing up early in October, it persisted until the following spring, with practically no interruption. The diagnosis of hay-fever was not made until subsequent seasons, when typical seasonal onset and duration made the diagnosis apparent. It is evident that these patients had an infection of the upper respiratory tract complicating their hay-fever. Fifteen patients stated that they developed sneezing, lacrimation and rhinorrhea at any time of the year on exposure to dust or other respiratory irritant. This exaggerated sensitiveness of the nasal mucosa appears to be a result of repeated attacks of hay-fever, and requires, often, careful differentiation from true, perennial hay-fever.

It has been an interesting observation that of all the ninety patients in this series, only twelve had escaped intranasal operative measures of one kind or another; and one patient had been operated on six different times. Many of these operations were undoubtedly indicated for the relief of obstruction or to promote drainage, but none was followed by any improvement in the hay-fever.

Two patients gave histories of bronchial asthma at other than the hay-fever season. In one of these, all attacks of asthma had ceased on the development of the pollen sensitization, and during the last five years—the duration of the pollen sensitization—there have been no asthmatic attacks at any time, and no cutaneous reaction other than that to the pollen can be elicited. In the other patient, the asthma and hay-fever were apparently independent, the one being due to casein, the other to ragweed pollen.

One patient had also a chronic eczema, and one an urticaria; and one stated that wheat flour precipitated an attack when it reached her nasal mucosa, as it did when she was engaged in making bread. All three of these gave negative cutaneous reactions, except to ragweed pollen.

It is probably worth mentioning that in two patients, not included in this series, who suffered from typical bronchial asthma, their attacks were ushered in by a brief period of sneezing, lacrimation and rhinorrhea, which disappeared at the onset of the dyspnea. They did not react to any pollens.

The eighty-one autumnal cases were all positive to ragweed pollen. Their onset and duration corresponded to the flowering of ragweed in this locality, and treatment with ragweed pollen has given the only satisfactory results obtained. Giant ragweed grows luxuriantly here. It reaches a height of from 8 to 10 feet, produces a great amount of pollen, and, because of general indifference to the growth of weeds, is found generally distributed.

Of these eighty-one autumnal cases, fifty-four, or 60 per cent., of the total series showed multiple sensitization. Forty-four of the patients were sensitive to one or more *Compositae,* the most frequent reactions being to goldenrod, yellow daisy and sunflower. Eight were sensitive to pollens of other botanical groups, in addition to several *Compositae;* while two gave reactions to ragweed alone of the *Compositae,* plus members of another botanical group. These were the combined vernal and autumnal cases. These figures are in general accord with those of other observers who have found multiple sensitization the rule rather than the exception.

TREATMENT

Because of the striking relation of the onset and duration of symptoms to the pollinating period of ragweed, and because of the wide dissemination of ragweed pollen by air currents, while goldenrod, daisy, sunflower and other similar pollens are not wind borne, treatment has been conducted in all patients under our control with ragweed pollen alone. In two instances in which the cutaneous reactions to sunflower were marked, treatment with this pollen was instituted by the attending physician, with no improvement.

Our first work was done using the scratch method, according to the technic adopted by Walker,[4] in which a number of small cuts were made on the flexor surface of the forearm, avoiding the drawing of blood. On each cut, we placed a pollen solution, and the reactions were read at the end of thirty minutes. In the majority of instances, this method was satisfactory; but it was soon found that occasionally an individual who gave a typical history of autumnal hay-fever gave no reactions to any pollens used by the cutaneous method. These patients were then given approximately 0.01 c.c. of pollen solution, intradermally. In our series, there were nine giving typical reactions following the intradermal injection who gave absolutely negative reactions to the pollen applied to scratches. Five others gave typical reactions to the intradermal pollen and only slight reactions to the scratch method. In several instances, 1 : 100 pollen solution gave a typical reaction when used intradermally; while a 1 : 50 pollen solution was followed by a negative reaction by the scratch test. In three instances, there were well marked reactions to other *Compositae,* with none to ragweed, when the scratch method was used; while, with intradermal injection, the reaction to ragweed was pronounced. Treatment of these patients with ragweed pollen has given fully as satisfactory results as with those whose cutaneous reactions to ragweed were quite typical.

The question naturally arises as to whether these patients have a less marked sensitization, which accounts for their more feeble skin reaction. Our series is too small for definite conclusions, but we have been unable to note any better response to treatment in these than in others, who gave well pronounced reactions to the scratch method. We are inclined to believe that the difference is one of skin sensitiveness rather than a constitutional variance. In any event, we have been forced to conclude that we cannot rely entirely on a negative scratch test. In one instance, a patient gave a history of hay-fever which occurred irrespective of season. Questioning elicited the fact that the condition was worse during August and September. Scratch tests were negative. Intradermal injection of ragweed pollen, however, gave a typical reaction. Treatment with ragweed pollen plus an autogenous vaccine gave a most gratifying result. Dependence on the scratch tests alone would, in this instance, have led us far astray.

We have observed one asthmatic who was desensitized by her attacks, and the reaction, which was typical before the attack, was entirely absent for a brief and variable period after the attack.[5] This

4. Walker, I. C., and Adkinson, J.: J. M. Res. **37**: 287 (Nov.) 1917.
5. Schloss, O. M.: Allergy in Infants and Children, Am. J. Dis. Child. **19**: 433 (June) 1920.

phenomenon has not been seen in any hay-fever patients.

A condition which is fairly frequent in this locality and which must be differentiated from true hay-fever is the so-called vasomotor rhinitis. These cases may present the symptoms and the intranasal appearance of true hay-fever. They are, however, perennial in type, or, at least, quite irregular in their time of onset and duration; they are not improved by rainy weather, and they are usually more severe and more frequent in the winter months. Twenty-six patients fall into this class. Eight of these showed a sensitization to some food protein, and were relieved by its elimination from the diet. The remaining eighteen gave no typical reactions to any cutaneous tests. Because many of them gave slight reactions to bacterial proteins and a few of them related their condition to a "cold" which immediately preceded it, autogenous vaccines were used. The results have not been brilliant. Nine, or 50 per cent., of them showed no improvement; five were completely relieved; while the remaining four received moderate degrees of relief.

We desired to start treatment from two to two and one-half months before the onset of the season, so that treatment might be completed before the season began. An interval of at least five days between injections was considered advisable. During the season just past, treatment of the first patient was begun, June 1, and of the last, July 26. Those who were taken late were treated under protest, and little improvement was expected.

The time of the first injection determined the interval between doses. In those beginning late, the treatment was given every forty-eight hours. The longest interval in any case was five days. Much to our surprise, those who began treatment late (sixteen began after July 10) obtained almost as satisfactory results as those starting earlier. From our limited observation, we are not convinced that the long interval between doses is necessary. Results are shown in Table 1.

TABLE 1.—RESULTS OBTAINED WITH DIFFERENT INTERVALS BETWEEN DOSES

	IMPROVEMENT			
	75%	50%	25%	None
5 days	3	16	5	5
4 days	6	16	5	0
3 days	0	4	3	0
2 days	3	4	9	0

CONSIDERATION OF RESULTS

We have become thoroughly convinced that the best results are obtained when the largest dosage is reached just at the onset of the season. Those whose treatment we directed were carried through to the actual beginning of the season, but, among those treated by others, eight were hurried through, and treatment was completed at periods varying from one month to two weeks before seasonal onset. These, without exception, showed little or no improvement. We are convinced that the desensitization secured is extremely fugitive, and that cessation of treatment sometime before pollination begins permits the patient again to become sensitive and to react as usual to pollen.

With this in mind, we have, with three patients whose treatment had been carried up to August 20, continued treatment through the season, using one-half the largest preseasonal dose. Two of these patients had been treated the previous year without seasonal treatment and had secured only fair results. With seasonal treatment, this year, they were approximately 90 per cent. improved. The third patient obtained equally satisfactory results.

We have not been able this year to determine any difference in results in the eighteen who had been treated the previous season, except in the two just mentioned, who, this year, received treatment throughout the season. Of the other sixteen, twelve were improved approximately 50 per cent. each year, while the other four claimed 75 per cent. improvement.

A year ago, we felt that the dosage recommended and supplied by those engaged in the preparation of pollen for use in treatment was not carried to a sufficiently high point. In that year, two patients were given, for their last three injections, 1:100 pollen solution in 0.1, 0.2 and 0.3 c.c. doses, respectively. We felt that the results obtained were better than in the others who received less pollen; we have used 1:100 pollen this year in fifty-one cases. The largest dose used has been 0.3 c.c. Nine of the patients showed an improvement of 75 per cent. or more; twenty-eight were more than 50 per cent. improved; twelve claimed no more than 25 per cent. improvement, and two secured no relief at all. Of those whose largest dose was 0.4 c.c. of a 1:500 solution, only three received 75 per cent. or more improvement; twelve between 50 and 75 per cent.; ten between 25 and 50 per cent., and three were not improved at all. Results are presented in Table 2.

TABLE 2.—RESULTS OBTAINED BY THE USE OF 1:100 POLLEN COMPARED WITH RESULTS WHEN LESS WAS USED

	75%	50%	25%	0%
1:100 pollen	9	28	12	2
1:500 pollen	3	12	10	3

Of the entire series, only one patient gave any reaction to the pollen injections. She developed local edema and hyperemia, together with a sharp attack of hay-fever and dyspnea after a dose of 0.3 c.c. of 1:1,000 ragweed pollen. The dosage was carried only slightly further, and her improvement was approximately 50 per cent. Through a misunderstanding of instructions, one physician administered at the first injection 0.9 c.c. of 1:10,000 ragweed pollen. Three days later, he gave the same amount of 1:5,000, then 1:1,000; and, on the ninth day after the first dose, she was given 0.8 c.c. of 1:500 dilution. Strange to say, she showed neither local nor general reaction at any time.

Of the seventy-nine patients treated with ragweed pollen, fifty-two, or 65.8 per cent., received more than 50 per cent. improvement. Not one was completely cured, if we understand cure to mean an absolute absence of any symptom. While the failure to secure complete cures is disappointing, the value of pollen treatment as an ameliorating agent is proved. When it is remembered that treatment was begun on sixteen patients after July 10 (two as late as July 26); that eight completed their treatment from two to four weeks before the season began, and that twenty-eight received less pollen than we feel should be given, the results justify the work. We believe these results could be much improved if the patients were under constant supervision of one giving attention to this work.

Treatment was not begun during the season in any instance. We have felt that the relief to be expected

was slight and that failures from this method would militate against the use of the preseasonal treatment. We have preferred thus to limit our work until more definite information is available.

SUMMARY

1. Autumnal hay-fever is quite common in northern Texas; while vernal cases are rare.

2. In autumnal cases studied, the patients, without exception, have reacted to ragweed.

3. No case due to grass pollens (except corn) has been seen.

4. Onset and duration of autumnal attacks corresponds to pollination time of ragweed, extending from about August 20 to October 10.

5. Sixty per cent. of all cases seen showed multiple sensitization; 49 per cent., were sensitive only to members of the same botanical group.

6. No patients were treated with combined pollens. When multiple sensitization was found in autumnal cases, ragweed pollen was used.

7. The intradermal method of testing proved more dependable than the scratch method.

8. Best results were obtained from treatment when doses were given at a four-day interval.

9. Treatment should not be discontinued before the beginning of the season. Better results probably follow when treatment is continued through the season.

10. Patients given 1:100 pollen obtained somewhat better results than those stopping with smaller dosage.

11. Reactions, local or general, are infrequent if the dosage is carefully graduated.

12. Seasonal treatment alone was not used.

13. In 65.8 per cent. of all autumnal cases, there was more than 50 per cent. improvement; and in 15.2 per cent. more than 75 per cent. relief from symptoms was claimed. No complete cure was obtained.

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A STUDY OF ONE HUNDRED CASES DIAGNOSED AS HYPERTHYROIDISM

WITH PARTICULAR REFERENCE TO DIFFERENTIATION, SYMPTOMATOLOGY, THE VEGETATIVE NERVOUS SYSTEM, BASAL METABOLISM, AND THE SUGAR TOLERANCE AND KOTTMANN TESTS *

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A special opportunity was afforded at U. S. Veterans' Hospital No. 76 for this study on account of the large amount of material found in the neuropsychiatric and tuberculosis sections, and the excellent laboratory facilities offered. Our patients were, for the most part, from the Great Lakes districts, and it was significant that all of them presented a palpable and noticeable enlargement of the thyroid gland. This enlargement, with some symptoms and signs of hyperthyroidism, suggested the diagnosis of hyperthyroidism until further investigation disclosed otherwise. The ages of the patients ranged between 22 and 32 years, with an average of 25 years.

All patients referred to our department underwent an additional physical examination in which special note was made of eye signs, vegetative nervous system manifestations, thyroid enlargement and pulsations, heart rate at rest and after exercise, and blood pressures. Mental and neurologic studies were made. A careful inquiry into the subjective symptoms with previous history was always an essential part of the investigation. Basal metabolic determinations by means of the Sanborn-Benedict apparatus, two ten minute tests being made; blood sugar estimations before and after the ingestion of 100 gm. of glucose, according to the method of Folin and Wu;[1] and the Kottmann reaction[2] as outlined personally by Drs. Petersen and Levinson, were carried out as routine procedures in each case. A series of Goetsch and thyroid feeding tests also was made.

TABLE 1.—FINAL DIAGNOSES

	Number
1. Hyperthyroidism	30
2. Hypothyroidism	6
3. Neurasthenia	33
4. Neurocirculatory asthenia	4
5. Hysteria	3
6. Chronic war neurosis	10
7. Interstitial pneumonia following gassing	5
8. Chronic active pulmonary tuberculosis	1
9. Valvular heart disease, aortic regurgitation	1
10. Cardiac arrythmia, extrasystoles	1
11. Chronic myocarditis	1
12. Dementia praecox	3
13. Manic-depressive psychosis	1
14. Mental deficiency	1

It was possible to keep under observation for a prolonged period of time a majority of the patients, thus giving an opportunity to study them further, to obtain accurate pulse and temperature records, and to repeat whatever tests were deemed necessary.

The final diagnoses grouped themselves as in Table 1.

From this table it is seen that the number of hyperthyroid cases, determined as such, approximated only about a third of the total number, whereas the psychoneurosis and neurosis group made up 50 per cent. Two of the interstitial pneumonia cases, three of the hypothyroid and five of the hyperthyroid were definitely complicated by a psychoneurosis of the neurasthenia type.

The subjective symptoms are given in Table 2.

The complaints of the hyperthyroid patients impressed one more definitely, and were usually clear cut, while those of the psychoneurotic patients abounded in vagueness, were quite numerous, and were frequently irrelevant to any ascribable pathologic condition. The psychoneurotic patient was usually introspective and circumstantial in his detail of affairs. Apprehension was frequently a noteworthy feature of the former group, which showed itself to one at first glance possibly on account of the stare of the eyes so common to these patients.

The nervousness which was by far the most common complaint was often ill defined and inexplainable by the patient. By twenty-two patients it was explained as being easily excited; by six, as trembling of the hands, and by eight as a fear reaction. These definite subdivisions were more frequent in the hyperthyroid group.

Fatigability was pronounced in both groups, but here again it appeared much more real in the toxic thyroid subject, in whom it was also more apparent.

* From U. S. Veterans' Hospital No. 76.

1. Folin, O., and Wu, H.: J. Biol. Chem. 41: 367 (March) 1920.
2. Petersen, W. F.; H'Doubler, F. T.; Levinson, S. A., and Laibe, J. E.: The Kottmann Reaction for Thyroid Activity, J. A. M. A. 78: 1022 (April 8) 1922.

The neurotic and neurasthenic complained of weakness and becoming easily tired. They were seemingly in a perpetual state of tiredness and lacking the mental power to carry out any sustained effort.

Palpitation of the heart was common to the two sets, while precordial pain was distinctly more common in the psychoneurotic.

Without further comparative analysis, it can be stated that the hyperthyroid patients presented a symptomatology decidedly more definite than the majority of others studied, revealed more of a disease insight, and were less introspective and self pitying.

OBJECTIVE SYMPTOMS

The most helpful single objective symptom in the differentiation was the sustained increase of the pulse rate taken in the recumbent position after the patients had been in this position for half an hour or so. There were many instances, however, when it was necessary to keep them under observation after the excitement attendant on an examination disappeared, for only then was it possible to obtain the true rate. The many other features of a hyperirritable vegetative nervous system common to these patients and brought on through mental excitation disappeared when they were at rest and quiet, and the profuse local hyperhidrosis, flushing, pounding heart, tachycardia and tremors vanished.

TABLE 2.—INCIDENCE OF SUBJECTIVE SYMPTOMS

COMMON TO ALL CASES	Per Cent.
1. Nervousness	90
2. Fatigability	85
3. Palpitation of the heart	65
4. Shortness of breath	45
5. Precordial pain	55
6. Loss of weight	30
7. Dizziness	25
8. Sweating, both local and general	25
9. Weakness	20
10. Pains in various parts of the body	20
11. Flushing	15
12. Cough	15
13. Pains in the chest	15
14. Stomach trouble	15
15. Constipation	15
16. Rapid heart action	10
17. Headache	10
18. Diarrhea	6
19. Insomnia	6
20. Smothering sensation at night	5
21. Frequent urination	4
22. Anginoid pains	3
23. Excessive salivation	3
24. Pruritus, general	2
25. Urticaria	1

COMMON TO HYPERTHYROID CASES	Per Cent.
1. Nervousness	100
2. Fatigability	90
3. Palpitation of the heart	80
4. Loss of weight	80
5. Shortness of breath	50
6. Precordial pains	40
7. Flushing	40
8. Dizziness	40
9. Sweating	30
10. Insomnia	20
11. Stomach trouble	20
12. Diarrhea	20
13. Cough	10

The eye signs proved most helpful. Mention may again be made of the stare of varying degrees frequently present without the other signs, or when those were slight.

The enlargements of the thyroid gland, except when accompanied by abnormal pulsations, bruits and flushing, were more often misdirecting.

The tremor of the outstretched digits often misled. That of the psychoneurotic as a rule, however, was not well sustained, being present intermittently and subsiding often after rest. The quality of the tremors was not found very helpful.

A decided increase in the pulse pressure, when properly obtained, was found in all our hyperthyroid cases.

VEGETATIVE NERVOUS SYSTEM

The great majority of the patients gave reactions of a hypertonic vegetative nervous system, as determined by clinical signs and symptoms and by pharmacologic tests with epinephrin, 1:1,000 solution, 0.75 c.c.; pilocarpin hydrochlorid, 0.0065 gm., and atropin sulphate 0.00086 gm., hypodermically. Both vagotonia and sympathicotonia were found to some degree, and in no instance was the one present without the other; but the signs were often predominant in one over the other.

The white adrenal line (Sergent [3]) was elicited in 80 per cent. of these young men. The so called dermographia obtained by firmer pressure of an object than that required for the production of the white line was usually of the mixed type, an admixture of red and white. As a rule, whenever there was not this admixture and only a red line, Sergent's white line could not be produced. In such patients the vagotonic symptoms were most decided. One was led to the conception of Eppinger and Hess that the white line is a manifestation of sympathicotonia, whereas the red line is due to vagotonia.

From the list of varied diagnoses given in Table 1, one is impressed with the uncertainty of taking symptoms and signs of a hypertonic vegetative nervous system as pointing to any one disease entity. They merely indicate some underlying disturbed condition of a variable nature.

Careful study of the social history disclosed, in the psychoneurotic group, a hereditary inheritance of a body and nervous system which was capable of standing only so much strain, beyond which certain capacities and limitations it usually gave way. It seemed that the weakness lay primarily in an abnormal functioning of the nervous system—more often of the hyperirritable type—and disturbed mental reactions. The reflexes of these patients were abnormally active; vasomotor instability was pronounced; they were emotionally unstable, and scrutiny into their past disclosed a more or less characteristic trail of difficulties physical and mental. Many of them disclosed also a make-up of endocrine dyscrasias which proved in many instances to be congenital, on investigation of the family.

LABORATORY PROCEDURES

The laboratory procedures proved themselves valuable as directly outlined. A persistent metabolic rate greater than plus 10 per cent. was taken as indicative of hyperthyroidism, and less than minus 10 per cent., as hypothyroidism. On such a basis, careful clinical findings checked with the basal metabolism in 90 per cent. of the cases; the sugar tolerance test in 77 per cent., and the Kottmann reaction in 75 per cent. In the hyperthyroid group, the sugar tolerance corresponded in 80 per cent. and the Kottmann in 90 per cent.

The clinical findings and basal metabolism checked in all but one of the hyperthyroid subjects in which both blood glucose and Kottmann reactions revealed a hyperthyroidism, and which corresponded with clinical investigation. The patient had been under prolonged medical treatment for exophthalmic goiter. The hypo-

3. Kay, W. E., and Brock, S.: Am. J. M. Sc. 161:555 (April) 1921.

thyroid states were the most difficult of diagnosis, both clinically and by the laboratory methods, with the exception of the basal metabolism, which in most cases made a diagnosis.

There was no direct relation disclosed between the extent of the delayed sugar curve and the hyperthyroidism, some of the most marked cases revealing only a slightly or moderately delayed utilization; but, on the contrary, the Kottmann reaction was markedly retarded in all our pronounced cases.

The sugar tolerance curve as a diagnostic procedure test for hyperthyroidism did not prove very satisfactory in our hands, as it was found to be subject to too many factors, was a hardship on the patient, and required a specially trained laboratory worker. The Kottmann reaction, on the other hand, seemed more promising, was fairly easy to perform, and was much easier for the patient. It failed, in the majority of hypothyroid patients and several psychoneurotics, to give us the correct information. In the latter there was a variable degree of retardation from slight to moderate, indicating a hyperthyroidism which clinically or by basal metabolic determinations we could not substantiate. More work, however, is needed in such cases to determine whether or not a possible explanation is a mild hyperthyroidism or a greater amount of secretion outpouring at various times through nervous influence or what not.

A NEW METHOD OF TESTING LIVER FUNCTION WITH PHENOLTETRACHLORPHTHALEIN

III. CLINICAL REPORT *

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Since the pharmacology of phenoltetrachlorphthalein was studied in 1910 by Abel and Rowntree,[1] who found that this dye, under normal conditions, was excreted entirely by the liver, numerous efforts have been made to use it for testing hepatic function. Previous methods have depended on the determination of the excretion of this dye in the stools or duodenal contents. The fallacies and impracticabilities of these procedures, which have prevented their wide clinical usage, have been previously pointed out.[2] In an attempt to avoid the drawbacks attendant on estimating the excretion of tetrachlorphthalein, I devised a method based on the ability of the liver to remove the dye from the blood stream. I have studied this method experimentally,[2] and have shown that after the intravenous injection of a given dose per body weight, the dye normally leaves the plasma very rapidly and with remarkable uniformity. Striking degrees of retention of this dye in the blood were found to exist when liver damage was produced experimentally by chloroform and phosphorus poisoning. When the dye was injected during the stage of jaundice and toxemia, large amounts remained in the blood over a prolonged period; after convalescence was established, curves of disappearance approaching normal were obtained. In the early jaundice due to mechanical obstruction, before there had resulted any extensive damage to the liver cells, it was shown experimentally that the dye could be removed from the blood stream in practically normal time, except that a trace remains in the plasma for twenty-four hours or longer.

PRINCIPLE OF THE METHOD

Five mg. of phenoltetrachlorphthalein per kilogram (2.2 pounds) of body weight is injected intravenously. This dosage is normally removed from the blood stream very rapidly: in normal human beings (Chart 1) from 2 to 6 per cent. is present in the plasma fifteen minutes after injection, and practically complete disappearance takes place within from forty to sixty minutes. In cases of liver disease, high percentages may be found in the plasma for many hours after injection.

TECHNIC

According to the technic that I have found convenient and easy to perform, the patient is weighed, and under sterile precautions the calculated dose of tetrachlorphthalein is measured by drawing it up into a 30 c.c. syringe. A short connection of rubber tubing with a clamp or a three way valve is then attached to the syringe, and physiologic sodium chlorid solution is drawn up to the 25 or 30 c.c. mark. With a needle of moderate bore, shaken free from water, a superficial vein of the arm is entered, and about 8 c.c. of blood is allowed to run into a clean, dry test tube. Through the same needle the diluted dye is injected, and the time of completion is noted. From 20 to 30 c.c. of physiologic sodium chlorid solution is then drawn into the syringe and injected through the same needle, in order to wash the vein wall free of dye.

With a small needle (a large hypodermic size may be used), and syringe which has been washed in physiologic sodium chlorid solution, from 2 to 4 c.c. of blood is withdrawn from a vein of the opposite arm at fifteen minutes after injection, and again at one hour. Later samples may be taken if indicated by the findings in the hour sample. Special care must be taken not to use salt solution or needles that have been in contact with the dye, as it is easily decolorized, and, in the colorless state, may contaminate the bloods in which the dye is to be determined.

DETERMINATION OF PERCENTAGE OF DYE IN PLASMA

The bloods drawn are allowed to clot in the test tubes and then centrifuged. Anticoagulants have not been used because they occasionally cause hemolysis, and this procedure has been found equally accurate. The plasma is pipetted off into separate small test tubes of uniform size, and one drop of 5 per cent. sodium hydroxid for every cubic centimeter of plasma is added to each tube. Ten milligrams of phenoltetrachlorphthalein is now added to 100 c.c. of water. This strength has been arbitrarily chosen as a standard for comparison because it represents the approximate concentration that would be reached if all the injected dye remained in the plasma. Therefore the percentages express how much of the total amount of phenoltetrachlorphthalein injected is present in the blood stream. The milligrams of dye for each hundred cubic centimeters of plasma may be derived by dividing the percentages by 10. With the sample of plasma obtained before the injection of dye, which should, of course, be clear, a series of standards is prepared in small test tubes of similar size, as in the accompanying table.

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* From the Medical Clinic, Boston City Hospital.

1. Abel, J. J., and Rowntree, L. G.: J. Pharmacol. & Exper. Therap. 1: 231, 1909.
2. Rosenthal, S. M.: J. Pharmacol. & Exper. Therap. 19: 385 (June) 1922; Bull. Johns Hopkins Hosp., to be published.

The plasma in which the amount of dye is to be determined is now matched with these standards, using naked eye comparison in a good light. Artificial light is less satisfactory than daylight.

PREPARATION OF SERIES OF STANDARDS*

0.2 C.c. 100% Standard Solution 0.6 C.c. Plasma 25%	0.2 C.c. 80% Standard Solution 0.6 C.c. Plasma 20%	0.2 C.c. 60% Standard Solution 0.6 C.c. Plasma 15%	0.2 C.c. 40% Standard Solution 0.6 C.c. Plasma 10%	0.2 C.c. 20% Standard Solution 0.6 C.c. Plasma 5%	0.2 C.c. 12% Standard Solution 0.6 C.c. Plasma 3%

* The amount of dye in the unknown plasma is determined by direct comparison with these standards. The 100 per cent. standard solution contains 10 mg. of tetrachlorphthalein to 100 c.c. of water. The percentages thus derived indicate approximately what part of the total amount of dye injected remains in the plasma.

NORMAL AND CONTROL CASES

The test has been carried out on ten persons who were normal physically (Chart 1 *A*). Eight were patients between 20 and 30 years of age who presented various types of psychoneurosis. One was a woman of 55, whose liver and gallbladder were found normal at operation; one was a man of 35, who had recovered from a monarticular arthritis. Ten cases of extrahepatic disease have been studied to make sure that organs other than the liver are not involved in the removal of this dye from the blood. These cases, whose curves are charted from above down in Chart 1 *B*, are as follows:

CASE 11.—*Hookworm* (treated). A Chinese man, aged 19.

CASE 12.—*Obesity.* Lost 50 pounds (23 kg.) on obesity diet. Weight, 172 pounds (77 kg.); age, 49.

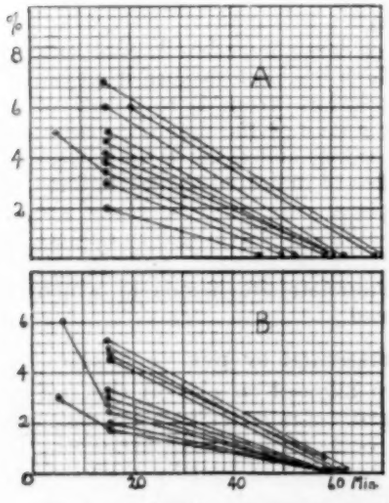

Chart 1.—Normal and control cases: *A*, curves obtained on ten physically normal persons; *B*, curves on ten patients with extrahepatic disease. Time markings indicate the time after injection of dye that the samples of blood were drawn. Percentages are determined by comparing the plasma of these samples with series of standards.

CASE 13.—*Syphilis of stomach* (pathologic diagnosis on excised section). Liver normal at operation. Positive Wassermann. Febrile. Age, 38.

CASE 14.—*Acute nephritis, of eight months' duration.* Chyliform ascites and edema. Age, 3½.

CASE 15.—*Transitory shifting edema, probably of nephritic origin.* Duration, two months. Age, 28.

CASE 16.—*Pernicious anemia; hypoplastic bone marrow.* Symptoms for seven months. Age, 39.

CASE 17. — *Severe chronic nephritis; hypertension; hereditary syphilis.* Wassermann negative for three years. Age, 24.

CASE 18.—*Pernicious anemia, severe.* Duration, nine years. Age, 48.

CASE 19.—*Chronic vascular nephritis; hypertension.* Symptoms for ten years.

CASE 20.—*Pernicious anemia.* Duration, one and one-half years. Febrile. Age, 64.

In these twenty cases, although the curves are slightly higher than those obtained in normal dogs, the same striking uniformity is seen. From a moderate trace (2 per cent.) to 6 per cent. is present at the fifteen minute interval, and there is practically complete disappearance within from forty to sixty minutes. The "ring test" that I devised [3] for qualitative detection of the dye consists of layering a specimen of plasma acidified with 3 per cent. hydrochloric acid over a 5 per cent. solution of sodium hydroxid. A color ring appears at the point of contact. This test is more sensitive than gross appearance, and it was positive on the hour specimen (where no dye could be detected visibly in the alkalized plasma) in 50 per cent. of the normal cases and in 40 per cent. of the control cases.

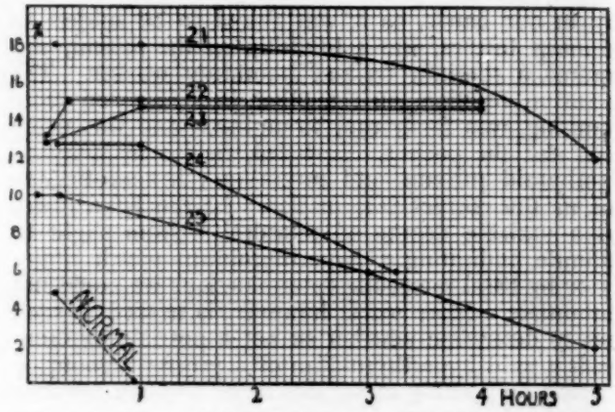

Chart 2.—Curves obtained in five cases of carcinoma of the liver. Later samples revealed, in Case 21, dye absent grossly, ring test faintly positive on plasma twenty-four hours after injection; Case 22, 5 per cent. in twenty-four hour sample; Case 23, 3 per cent. in twenty-four hour sample; Case 24, faint trace in twenty-one hour sample. The normal curve is a composite drawn from Chart 1 *A*.

Because of greater quantitative accuracy, gross findings alone have been adhered to in charting the time of disappearance. The ring test can be carried out on sufficiently small amounts of plasma to permit of blood collection from the ear or finger in Wright's blood capsules. It can be used to determine the ultimate time required for the dye to disappear, but the earlier readings should be estimated quantitatively.

CARCINOMA OF LIVER

Five cases of carcinoma of the liver have been studied. Marked degrees of retention of the dye in the blood were present in all of them (Chart 2). It is of interest to note that the height of the curves (degree of impairment of function) did not parallel the depth of jaundice. Case 24, chronic biliary obstruction due to malignancy, with no gross evidence of intrahepatic metastasis, showed intense jaundice, while icterus was very faint in Case 21.

CASE 21.—*Carcinoma of liver; gastric carcinoma.* Age, 53. Gastric symptoms with right upper quadrant pain for two months, with loss of 38 pounds (17 kg.). Subicteroid tinge to skin and sclerotics. Very hard, nodular liver extended 8 cm. below the costal margin. Bismuth series: gastric carcinoma.

CASE 22.—*Carcinoma of Liver.* Age, 62. Pain and bulging in right upper quadrant for ten weeks; slight icterus for three weeks; emaciation and asthenia. Hard, irregular liver, edge 2 cm. above the umbilicus; edema of the legs. No ascites.

CASE 23.—*Carcinoma; obstructive jaundice.* Age, 60. Painless jaundice for seven weeks. Clay-colored stools; generalized pruritus; weakness. Jaundice very deep. Liver extended 3 cm. below the costal margin. No palpable nodules. Bismuth series showed extragastric mass.

CASE 24.—*Carcinoma of gallbladder; obstructive jaundice.* Age, 40. Deep painless jaundice for eleven weeks. Clay-

3. Rosenthal, S. M. (Footnote 2, second reference).

colored stools. Patient lost 30 pounds (13.6 kg.). The liver, smooth and slightly tender, extended to 1 cm. above the umbilicus. Operation revealed carcinoma of the gallbladder, completely obstructing the common and hepatic ducts. No intrahepatic metastasis was detected.

CASE 25.—*Carcinoma of liver.* Age, 41. Occasional upper abdominal pain for five years; frequent and severe for two months. Slight jaundice, choluria. Hard, irregular liver, extended 8 cm. below the costal margin. Death one week following laparotomy. Necropsy revealed carcinoma involving the liver, mesentery, omentum and lungs; acute fibrinous peritonitis; acute vegetative endocarditis; cholelithiasis. The liver weighed 2,010 gm.; about one fourth of its substance consisted of malignant areas from 0.3 to 2 cm. in diameter.

CIRRHOSIS

Four tests were done in three cases of cirrhosis (Chart 3). Case 26, in which the liver was small, gave a higher curve than the others in which the liver was enlarged. The cases are as follows:

CASE 26.—*Atrophic cirrhosis.* Age, 53. Epigastric discomfort and ascites of three weeks' duration. Slight jaundice for one week. Liver and spleen not felt; upper abdominal veins slightly dilated. Marked ascites. Bismuth series and all other examinations negative. Patient tapped three times during one month in the hospital. One, four and five liters of straw-colored fluid of low gravity obtained. Jaundice cleared up.

CASE 27.—*Cirrhosis, probably Hanot type.* Age, 4. Patient in South Department because of pertussis. Admitted to children's hospital two and one-half years before with yellowish skin; at that time, liver 8.5 cm. and spleen 3.5 cm. below the costal margin. Many attacks of transitory jaundice since. Present attack had lasted three months. Liver now 12 cm. and spleen 9 cm. below the costal margin. Both organs smooth and firm; clubbed fingers. Blood picture normal, and Wassermann test negative, at several examinations. Choluria. Stools at times clay colored.

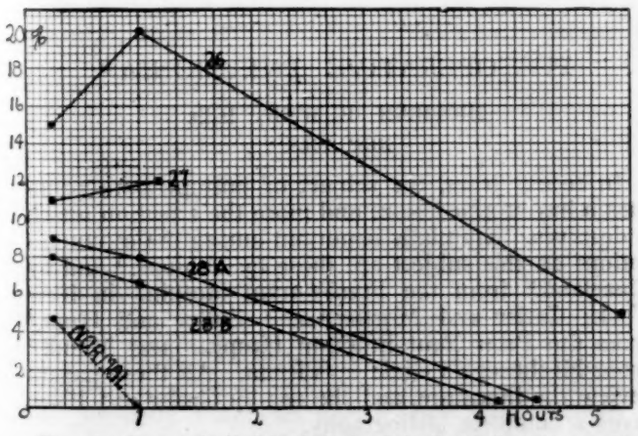

Chart 3.—Curves obtained in cirrhosis of the liver: Case 26, atrophic cirrhosis; no dye present in a twenty-four hour sample; Case 27, cirrhosis in child, probably Hanot type; Case 28, hypertrophic cirrhosis; Curve *B* obtained three weeks after Curve *A*.

CASE 28.—*Alcoholic cirrhosis.* Age, 50. Frequent epigastric pain and dyspnea for nine years. Ascites for one year. Patient tapped eight times in six months. From 6 to 8 liters of straw-colored fluid at each tapping. Test done on admission, and again three weeks later. Rest in bed and two tappings in interval. Liver was 5 cm. below the costal margin nine years before; was now 8 cm. below. It was firm and not nodular. Hepatic facies. Sclerotics subicteroid. Skin not jaundiced. Marked ascites. No edema of extremities.

MISCELLANEOUS CASES

Among the following, several cases confirm the value of the test from a standpoint of measuring the degree of liver damage, and also demonstrate its worth in the diagnosis of liver disease. Two cases of acute hepatitis (Cases 29 and 30) presented the highest curves that were obtained in this series (Chart 4). In one of them (Case 29) the remarkably high curve was obtained before confirmatory clinical evidence of hepatitis had manifested itself. Patient 31 showed at operation several stones in the gallbladder, with chronic cholecystitis and biliary infection resulting from them. Cholangeitis was suspected preoperatively because of the high curve

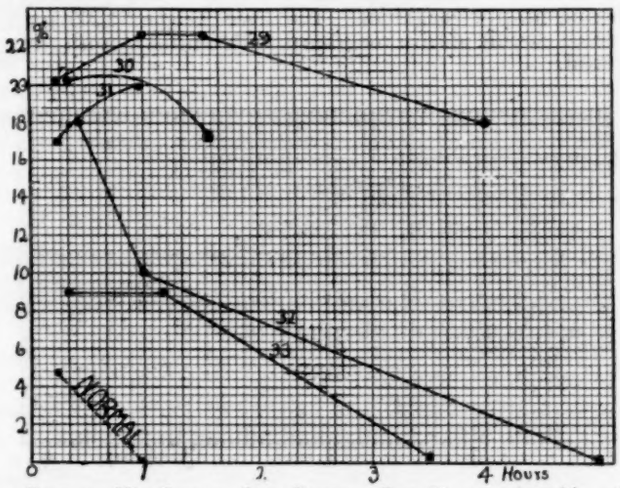

Chart 4.—Miscellaneous liver diseases: Case 29, acute hepatitis, etiology unknown; Case 30, acute hepatitis following arsphenamin; Case 31, cholangeitis, probably acute hepatitis (faint trace of dye present in twelve hour sample); Case 32, solitary liver abscess; Case 33, chronic passive congestion; degenerative changes in liver.

obtained. One case of chronic passive congestion with slight jaundice has been studied (Case 33).

Case 34 (Chart 5) was a moderately severe toxemia of pregnancy with slight jaundice. Case 35 was an excessive vomiting of early pregnancy in which the symptoms later cleared up. Case 36 was an acute cholecystitis with probable cystic duct obstruction complicating convalescence from typhoid. In this and in the preceding case, with very slight disturbance of liver function, one showed an increased percentage of dye only in the fifteen minute sample, while the other showed a slightly higher reading at the hour period. Case 37 is extremely interesting in that it represents a case of chronic jaundice of the acquired hemolytic type, in which a normal curve was obtained.

CASE 29.—*Acute hepatitis; probably acute cholangeitis, etiology unknown.* Age, 30. Frequent irregular chills and high fever for ten days. Moderate jaundice, deepening; liver felt on admission, not palpable later; severe toxemia. Blood cultures, and Widal and Wassermann tests, negative. No leukocytosis.

CASE 30.—*Acute yellow atrophy* (Boston Lyin-In Hospital). Age, 33. Eight months' pregnant. Three weeks ago, shortly after fifth injection of arsphenamin, jaundice, severe toxemia, and slight fever began. Hepatic dulness diminished. Patient extremely ill. Death in one week. Necropsy revealed acute hepatitis with multiple hemorrhages in the liver; acute tubular nephritis; acute splenitis. The liver weighed 1,850 gm.

CASE 31.—*Cholelithiasis; chronic cholecystitis; subacute cholangeitis; probable hepatitis.* Pyrosis and epigastric distention for several years. Dull right upper quadrant pain for three weeks. Moderate icterus. No hepatic enlargement or tenderness. Operation revealed thickened, scarred, contracted gallbladder containing three stones. The liver surface presented a mottled appearance. No duct obstruction. Pathologic report on gallbladder, "chronic cholecystitis."

CASE 32.—*Solitary liver abscess.* Age, 34. Septic fever and leukocytosis for one month. No hepatic enlargement or

jaundice. Thoracic paracentesis yielded pus. Operation (transpleural): Abscess about 8 cm. in diameter in right lobe of the liver, 3 cm. beneath the surface.

CASE 33.—*Adherent pericardium; chronic passive congestion.* Age, 12. Symptoms of cardiac decompensation with palpable liver for one and one-half years. Liver 6 cm. below the costal margin. Spleen not felt. Slight ascites and edema of the ankles. Sclerotics jaundiced. Skin subicteroid. Patient desperately ill; death three weeks after present admission. Necropsy revealed: adherent pericardium; acute vegetative endocarditis; cardiac hypertrophy and dilatation; chronic passive congestion. The liver weighed 1,200 gm.; marked chronic passive congestion, with central necrosis, was present.

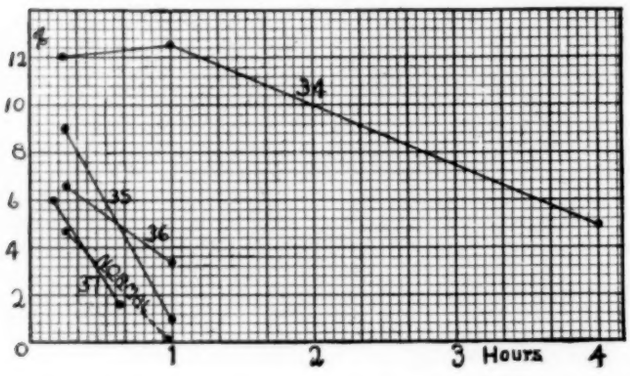

Chart 5.—Case 34, toxemia of pregnancy, with slight jaundice; Case 35, excessive vomiting of pregnancy, with rapid recovery; Case 36, acute cholecystitis; Case 37, hemolytic jaundice, acquired type, of four years' duration.

CASE 34.—*Toxemia of pregnancy.* Age, 36. Three months' pregnant. Intractable vomiting for five weeks. Therapeutic abortion performed a week before admission. Slight jaundice. Moderately toxic appearance. Albumin, acetone and diacetic acid in urine. Curettage done because of persistance of symptoms; postoperative death. No necropsy.

CASE 35.—*Hyperemesis gravidarum.* Age, 27, Three months' pregnant. Severe vomiting for three weeks. Examination negative except for enlarged uterus. No cholemia or choluria. Vomiting cleared up within one week after test.

CASE 36.—*Acute cholecystitis.* Age, 51. Third week of convalescence (ambulatory) from typhoid. Sudden pain and tenderness in right upper quadrant. Orange sized gallbladder palpable. Temperature 101 F. for two days, then returned to normal. No icterus.

CASE 37.—*Hemolytic icterus, acquired type.* Age, 27. Asymptomatic icterus of four years' duration; general health good. No pruritus. Physical examination negative except for jaundice and anemia. Erythrocytes, 2,500,000; leukocytes, 4,400. Hemoglobin, 55 per cent. Reticulated corpuscles, 1.8 per cent. Stools contained bile. No choluria. Afebrile.

COMMENT

The normal liver removes phenoltetrachlorphthalein from the blood stream with rapidity and uniformity. The damaged liver takes up the dye much more slowly; large amounts may remain for a prolonged period in the plasma, where the dye can be accurately and quantitatively estimated. Experiments have shown that practically none of the dye is taken up by the red blood cells. In this series of cases of liver disease the abnormal results have not paralleled the degree of jaundice or hepatic enlargement. The highest degrees of retention have been present in acute hepatitis, in a case of cirrhosis in which there was a small liver, and in advanced cases of hepatic carcinoma. A fixed dosage of tetrachlorphthalein according to the body weight is used, so that a unit of work is imposed on each unit, by weight, of liver tissue. The normal curves show the time required for the entire liver to perform this task. For these reasons, borne out by clinical and experimental observation, it seems probable that the test gives an index of the total amount of functioning liver tissue.

No reactions or untoward effects, following the injection of tetrachlorphthalein, occurred in any of these cases. Transitory induration of the vein wall at the site of injection was frequent, and in two cases localized thrombosis developed and persisted for several days.

No dye appeared in the urine in the normal and control cases. In the series of hepatic diseases, from a trace to 4 per cent. was usually present, but the amount of dye in the urine did not parallel the degree of retention in the blood, and in these cases the dye in the urine could not be taken as an index of the severity of liver damage. No dye appeared in the urine in four of these cases that showed retention in the blood.

SUMMARY AND CONCLUSIONS

The method of testing liver function described in the foregoing depends on the ability of the liver to remove phenoltetrachlorphthalein from the blood stream.

The simplified technic worked out is not time consuming or difficult to perform.

Clinical results have fully borne out experimental work. Following the intravenous injection of the dye, strikingly high degrees of retention in the plasma have been found to occur in cases of hepatic disease.

Results by this method are quantitative, and it is believed that they give an index of the functional capacity of the liver.

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POSTOPERATIVE PNEUMONIA *

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In recent years, the subject of postoperative pneumonia has received more and more the attention which it deserves. Especially important among the communications on this subject are those by Whipple [1] and by Cleveland,[2] from the Presbyterian Hospital in New York; Cutler and Morton,[3] and Cutler and Hunt,[4] from the Peter Bent Brigham Hospital, and Mandl [5] from Hochenegg's clinic in Vienna. All these papers review the literature, and the one by Cutler and Hunt gives a complete bibliography.

These papers are interesting not only for their presentation of the statistical incidence of postoperative pneumonia, but also for the ideas which the authors express as to the cause of this complication. Whipple found ninety-seven cases of postoperative pneumonia, or 2.3 per cent., following 3,719 operations; Cleveland, sixty-five cases, or 3.3 per cent. of 1,940 cases; Cutler and Hunt, sixty-three cases of pulmonary complications, or 3.92 per cent., following 1,604 operations. Of

* This paper is based on the investigation made at the Mount Sinai Hospital, New York, at the request of a committee appointed to consider postoperative pulmonary complications.

1. Whipple, A. O.: Surg., Gynec. & Obst. **26**: 29 (Jan.) 1918.
2. Cleveland, M.: Surg., Gynec. & Obst. **28**: 282 (March) 1919.
3. Cutler, E. C., and Morton, J. J.: Surg., Gynec. & Obst. **25**: 621 (Dec.) 1917.
4. Cutler, E. C., and Hunt, A. M.: Postoperative Pulmonary Complication, Arch. Surg. **1**: 114 (July) 1920; Arch. Int. Med. **29**: 449 (April) 1922.
5. Mandl, F.: Deutsch. Ztschr. f. Chir. **165**: 67 (July) 1921.

the cases reported by Cutler and Hunt, only eight were classified as pneumonia; the others were pulmonary infarction, pulmonary embolism, pleurisy, empyema, bronchitis and exacerbations of tuberculosis. Mandl

TABLE 1.—INCIDENCE OF PNEUMONIA FOLLOWING OPERATIONS UNDER GENERAL ANESTHESIA AND THE ORGANS OR REGIONS OF THE BODY INVOLVED

	No. of Operations	No. of Cases of Pneumonia	Incidence, Per Cent.
Appendix	401	22	5.4
Hernia	290	16	5.5
Stomach	94	13	13.8
Gallbladder and ducts	154	7	4.5
Small intestine	20	1	5.0
Colon and rectum	55	5	9.09
Exploratory laparotomy	66	4	6.06
Pelvic-gynecologic operations	565	5	0.88
Hemorrhoids	48	1	2.08
Kidney and ureters	91	2	2.19
Prostate	43	2	4.6
Testicles	14	1	7.1
Breasts	66	1	1.5
Subphrenic abscess	9	1	11.1

reports fifty-seven cases of pneumonia, or 4.44 per cent., in a total of 1,283 operations under general anesthesia, and forty-six cases, or 4.39 per cent., following 910 operations under local anesthesia.

In looking for the cause of postoperative pneumonia, various views have been developed by writers on this subject. These views may be thus summarized:

1. The pneumonia is due to the aspiration into the bronchi of the contents of the mouth, such as mucus, saliva, or regurgitated fluid from the stomach. Aspiration undoubtedly occurs occasionally during general anesthesia. This is probably responsible for the formation of lung abscess. Wessler [6] has shown that such abscesses give definite signs of their presence from thirteen to fourteen days after operation, and are probably due to anaerobic organisms. Aspiration, however,

TABLE 2.—ORGANS OR REGIONS OF THE BODY INVOLVED IN OPERATIONS UNDER LOCAL ANESTHESIA FOLLOWED BY PNEUMONIA

	No. Cases of Pneumonia
Appendix	1
Hernia	3
Stomach	1
Bladder	2
Exploratory laparotomy	1

does not explain the occurrence of a pneumonia within one or two days after operation, and of a pneumonia which promptly disappears within from three to seven days without any evidence of pus formation. Nor does it explain the occurrence of pneumonia following local anesthesia.

2. The pneumonia is due to a hypostatic congestion. This is probably the cause of the pneumonia in weakened individuals and in the very old, and in those suffering from myocardial insufficiency. It does not explain the pneumonia occurring in young and vigorous individuals.

3. The pneumonia is due to the irritating effect of the anesthetic itself on the mucous membrane of the respiratory tract. This accounts for the mild or even the severe forms of bronchitis which one sees after ether anesthesia. It is quite possible that, in the hands of the inexperienced, this may also be responsible for some cases of pneumonia. It does not explain, as Cutler and Hunt remark, why these complications occur even when the anesthetic is given by an expert. Neither does it not explain the pneumonia occurring after local anesthesia.

4. The pneumonia is due to emboli from the operative field. Cutler and Hunt make a strong plea for this mode of origin of postoperative pneumonia. They conclude that the majority of postoperative pulmonary complications are due to such emboli.

5. The pneumonia is due to chilling of the body surface. This is possibly a factor in an occasional case. But in an institution in which conditions are uniform, this does not explain why pneumonia occurs in one case and not in the next one in which operation was performed under the same conditions. It also does not account for the fact, demonstrated further on in our statistical study, that the greater incidence of pneumonia occurs after abdominal operations.

Other etiologic factors have been mentioned, such as retention of secretion in the bronchi, due to lack of cough because of fear of pain; lowered immunity due to weakened state, and previous inflammation of

TABLE 3.—LOBES INVOLVED IN ALL CASES OF PNEUMONIA FOLLOWING OPERATIONS PERFORMED UNDER GENERAL AND LOCAL ANESTHESIA

	No. of Cases
Right upper lobe	1
Right lower lobe	41
Left lower lobe	21
Both lower lobes	24
Right upper and right lower lobe	1
Right upper and both lower lobes	1
Total	89

the upper respiratory tract. All of these factors may possibly play a rôle in the causation of postoperative pneumonia.

In this paper are given the results of an investigation undertaken at the Mount Sinai Hospital with the object, first, to ascertain the incidence of postoperative pneumonia following the administration of a general anesthetic; and, secondly, to determine, if possible, the etiologic factors which play a rôle in the production of the pneumonia.

STATISTICS

From March 8, 1921, until Sept. 1, 1922, there were altogether 2,932 patients to whom a general anesthetic was administered, either ether, nitrous oxid and ether, or nitrous oxid and oxygen, administration being of

TABLE 4.—DURATION OF PNEUMONIA

Duration	No. of Cases
2 days	1
3 days	2
4 days	11
5 days	27
6 days	14
7 days	7
8 days	1
9 days	1
14 days	1

variable duration. Of these patients, eighty-one developed a postoperative pneumonia, an incidence of 2.76 per cent. There were also eight cases of pneumonia following operations under local anesthesia.

In the accompanying tables will be found all the important statistical data concerning our cases of post-

6. Wessler, Harry: Suppuration and Gangrene of the Lung, J. A. M. A. 73: 1918 (Dec. 27) 1919.

operative pneumonia. The rest of the cases were indefinite in duration, owing to the fact that the physical signs of pneumonia disappeared very slowly.

About 25 per cent. of the patients with postoperative pneumonia gave a history of recent respiratory affection, or were suffering from bronchitis previous to the operation.

The forms of anesthesia used were: nitrous oxid and ether, in seventy-three cases; nitrous oxid and oxygen, seven cases; local anesthesia, eight cases, and local anesthesia followed by nitrous oxid and oxygen, one case.

In the eighty-nine pneumonia cases, the complications noted were: serofibrinous pleural effusion, four cases; empyema, two cases, and abscess of the lung, two cases.

In the eighty-nine cases of pneumonia, there were twenty deaths. An analysis of the cases shows that pneumonia was responsible for only a small number of these.

Of the twenty deaths, five occurred long after the traces of pneumonia had disappeared. Causes of death in the cases are: gradually increasing weakness following a Pólya operation for carcinoma of the stomach; perigastric abscess following a subtotal gastrectomy for carcinoma; hemorrhage after a second operation; liver abscess; pelvic abscess, and peritonitis, one instance of each.

Of the remaining fifteen deaths, six were due to the original disease, or to a surgical complication; but death was possibly hastened by the pneumonia. In addition to the pneumonia, the findings at death in four of these cases were: Case 1, general peritonitis; Case 2, pyelonephritis, and necrotic areas in the prostatic bed; Case 3, besides a small area of bronchopneumonia in the left lower lobe, a carcinoma of the pylorus with extension into the head of the pancreas, and metastatic carcinoma of the liver, in a case in which death occurred on the day following operation; Case 4, tumor of the right kidney invading the liver and tuberculosis of the apex of the right lung.

In the other two cases, in which there were no necropsies, but which we place in this category, there was found, in Case 5 at the exploratory laparotomy, an inoperable carcinoma of the head of the pancreas. The patient died eight days after the operation. In Case 6, ileosigmoidostomy was performed for inoperable carcinoma of the hepatic flexure. At operation, a large tumor of the hepatic flexure was found extending into the mesocolon. There were also found tumor masses along the root of the mesocolon and along the abdominal aorta. The patient died four days after the operation.

Of the remaining nine deaths, there were two instances in which old age was a great factor. In Case 7, in which the patient was 73 years of age, cecostomy for carcinoma of the rectosigmoidal junction was performed under nitrous oxid and ether anesthesia. Signs of bronchopneumonia developed in both lower lobes. There was no necropsy.

In Case 8, the patient, aged 76 years, underwent suprapubic cystotomy under local anesthesia for a hypertrophied prostate. Necropsy revealed bronchopneumonia in both lower lobes.

In the remaining seven cases, four deaths were due to postoperative pneumonia, two cases to an empyema secondary to the pneumonia, and one case to an abscess of the lung following pneumonia.

COMMENT

As I have said, the object of this investigation was twofold: first, to learn the incidence of postoperative pneumonia, and, second, to determine, if possible, the etiologic factors concerned in its production.

Incidence.—It can be seen from the foregoing data that the incidence of pneumonia among all operations is comparatively small; in our cases, 2.76 per cent. This corresponds well with Whipple's figure of 2.3 per cent. and with Cleveland's figure of 3.3 per cent. It was somewhat below Mandl's figure of 4.44 per cent. A study of the figures from the standpoint of the regions of the body involved gives data of great importance. The figures in Table 1 show the high incidence following operations on the stomach; namely, 13.8 per cent. The operations on the stomach, appendix, hernias, gallbladder and ducts, the small intestine and the large intestine, and the exploratory laparotomies, a total of 1,080, have an incidence of 6.29 per cent. There remain 1,852 operations, performed under general anesthesia, on other regoins of the body, with thirteen cases of pneumonia, an incidence of 0.70 per cent.

It is interesting in this connection to examine Mandl's figures. In 208 operations on the stomach under general anesthesia, there were twenty-two cases of pneumonia, or 10.57 per cent. This corresponds well with our figures. In 354 operations on the stomach under local anesthesia, Mandl had twenty-four cases of pneumonia, or 6.77 per cent. In 738 operations under general anesthesia, on the head, neck, mouth, thyroids and the extremities, he reports twenty cases of pneumonia, or 2.7 per cent.

The lesson to be drawn from these figures is that, except in operations on the abdomen, postoperative pneumonia is a rare complication; and, of abdominal operations, it is especially those performed on the stomach which are liable to be followed by pneumonia.

Factors Concerned in the Causation of Postoperative Pneumonia.—We have enumerated the various views held as to the causation of postoperative pneumonia. Among our cases, there are some which may be placed in each of these categories. There were two cases, which, in all probability, were due to aspiration into the bronchi of the contents of the mouth:

CASE 9.—H. A. underwent pylorotomy and cauterization of a duodenal ulcer, with button gastro-enterostomy. Nitrous oxid and ether anesthesia was employed. Two days later, there were signs of consolidation in the right lower lobe. Ten days later, empyema developed, with foul smelling pus. Lung abscess was suspected. Death ensued. Necropsy was not performed.

CASE 10.—J. G. underwent Quénu's operation for carcinoma of the rectum, under nitrous oxid and ether anesthesia. Two days later, there were signs of consolidation, and death ensued. Necropsy revealed a bilateral, fetid, purulent bronchopneumonia, with cavity formation. Spirilla and fusiform bacilli were found in large numbers in the lesions.

There were five cases in weakened and old persons, in which, in all probability, the pneumonia was secondary to hypostatic congestion. Their ages were 68, 70, 73 and 76 years. Two of the cases were suprapubic cystotomies under local anesthesia; one case was a second stage prostectomy under nitrous oxid and oxygen anesthesia; one, a cecostomy for carcinoma of the rectosigmoidal junction under nitrous oxid and ether anesthesia; and one, a hernioplasty for a strangulated direct inguinal hernia, under local

anesthesia. Four of the patients had emphysema and chronic bronchitis.

Among all the cases, there was mention of only one case in which lobar pneumonia involved the upper lobe alone:

CASE 11.—E. S. underwent curettage for incomplete abortion, under nitrous oxid and ether anesthesia. The next day, the patient had a chill and the temperature rose to 103.6 F. Two days later, there were definite signs of consolidation of the right upper lobe. The temperature continued high, from 104 to 105 F., and came down by crisis on the ninth day.

The high temperature, the initial chill, the rusty sputum, the involvement of the upper lobe and the crisis make this case different from all the other cases of postoperative pneumonia. It must be considered a case of accidental lobar pneumonia of the usual type, and not of the same origin as the others.

There are none among our cases which can definitely be said to have been caused by emboli from the operative field. We have occasionally observed pulmonary infarction following operations not included in the present series, but these were definitely recognized as such.

There remain, then, the greater bulk of our series, for which an explanation is greatly to be desired. With the exception of a few, these cases occurred within two days after operation. The average duration was from four to seven days. There was no chill. The beginning was usually attended by cough and purulent expectoration. There was usually no pain in the chest. The temperature seldom rose as high as 103 F., and often did not rise above 100 F. On the first day, there was diminished breathing over the areas involved, followed the next day by signs of consolidation. Resolution was prompt in the patients who recovered. In only a few cases was there delayed resolution; and two patients developed an abscess of the lung. In most cases, the patient was not very ill from the pneumonia. There were only seven deaths which could be definitely ascribed to pneumonia.

In looking for an explanation for the occurrence of postoperative pneumonia, we were at first totally at a loss. True, about 25 per cent. of the cases showed, previous to the operation, some respiratory affection. Undoubtedly, this forms a predisposing factor, and operations should be delayed, whenever possible, until any inflammation of the respiratory tract has subsided. We consider too deep an anesthesia another factor in the production of pneumonia. But, in looking over our material, there are these points which stand out: 1. Most of the cases of pneumonia were of a mild character. 2. Excepting abdominal operations, postoperative pneumonia occurs only in 0.70 per cent. of the cases. 3. In abdominal operations, it is especially those on the stomach which are followed by pneumonia. It seemed strange to us that the ordinary factors of exposure, previous respiratory affection, anesthetic, etc., should only work in favor of the development of pneumonia after abdominal operations. There was evidently another element which we had not discovered.

A clue to this was given us by the postmortem examination in four cases, not included in our series, which had incorrectly been diagnosed as postoperative pneumonia. Following is a survey of these cases:

CASE 12.—J. K. underwent panhysterectomy and bilateral salpingo-oophorectomy for carcinoma of the uterus, under nitrous oxid and ether anesthesia. There had been no previous respiratory affection. Two days later, signs of consolidation developed over the left lower lobe, and the patient died, six days later. Necropsy revealed angulation of a loop of the small intestine. The lower part of both lower lobes were collapsed and airless, but there was no pneumonia.

CASE 13.—S. S. underwent hysterectomy for fibroid and bilateral salpingo-oophorectomy for diseased adnexa, under nitrous oxid and ether anesthesia. The following day, there was a rise in temperature, with diminished breathing over the right lower lobe. Two days later, there seemed to be complete consolidation of the right lower lobe, and the patient died, five days after operation. Necropsy revealed an infection of the operative wound. There was no pneumonia, but both lower lobes were completely collapsed.

CASE 14.—D. L. had an incision in the left axillary fold for cellulitis, under nitrous oxid and oxygen anesthesia. The same day, there were signs of complete consolidation of the right lower lobe; and streptococcus bacteremia was demonstrated. The patient died, two days later. Necropsy revealed no evidence of pneumonia, but the right lower lobe was completely collapsed and edematous.

CASE 15.—E. S. underwent cholecystectomy for acute cholecystitis and cholelithiasis, under nitrous oxid and ether anesthesia. The following day, there was a rise in temperature, with signs of complete consolidation of the left lower lobe. The patient died, three days after operation. Necropsy revealed no evidence of pneumonia, but massive collapse of the left lower lobe.

Here, then, are four cases which clinically presented the symptoms and signs of pneumonia, but which, on postmortem examination, revealed a partial collapse of the lung instead of pneumonia. Collapse of the lung following operation was first reported by Pasteur [7] in 1908, who termed the condition massive collapse of the lung. It is interesting that his sixteen cases of massive collapse of the lung reported in 1914 occurred after operations on abdominal organs. The subject has further been studied by Bradford,[8] Crymble,[9] Scrimger [10] and Briscoe.[11] Recently, St. John [12] has reported two cases, and Girsdansky and Elwyn,[13] one case. It is often not recognized; and, in our four cases, pneumonia was suspected. In its classic form, massive collapse of a whole lung is characterized by signs of consolidation or of fluid, or of both, on the affected side, with displacement of the heart and mediastinum to the same side.

Bradford and others mention collapse of one lobe or part of a lobe; and, in cases of suspected pneumonia on the day following operation, we have often found that a portion of one lower lobe or of both lower lobes showed dulness and diminished breathing. These signs either disappear the next day or are succeeded by the signs of pneumonia. Especially was this the case in operations on the stomach. We have gradually become more and more convinced that collapse of a small portion of the lung following abdominal operations is a not uncommon occurrence, but that it usually disappears within from twenty-four to forty-eight hours. To realize what part this plays in the production of pneumonia after operation, one must consider what happens in cases of hypostatic congestion in weakened and old people, or in prolonged and exhausting disease. Here, too, the basal portions of the lungs are airless and congested. If they do not expand after a certain

7. Pasteur, W.: Lancet **2**: 1351, 1908; Brit. J. Surg. **1**: 1305, 1914.
8. Bradford, J. R.: Quart. J. Med. **12**: 127 (Oct. 18) 1919.
9. Crymble, P. T.: Brit. J. Surg. **5**: 363 (Jan.) 1918.
10. Scrimger, F. A. C.: Surg., Gynec. & Obst. **32**: 486 (June) 1921.
11. Briscoe, J. C.: Quart. J. Med. **13**: 293 (April) 1920.
12. St. John, F. B.: Ann. Surg., to be published.
13. Elwyn, Herman, and Girsdansky, Joseph: Postoperative Massive Collapse of Lung, J. A. M. A. **79**: 718 (Aug. 26) 1922.

length of time, and there is present an infection of the bronchi, the infection has a great tendency to spread to the hypostatic lung, and pneumonia is the result.

This, in our opinion, is what happens in postoperative pneumonia: There is first a collapse of a portion or of the whole of a lower lobe, or of both lower lobes. If the collapsed portion of the lung does not reexpand within a certain limit of time, perhaps from twenty-four to forty-eight hours, then it depends mainly on the presence or absence of any bronchial inflammation and on its extent and severity whether pneumonia results or not. Inflammation of the bronchi may have been present before the operation, or it may be, and often is, the result of irritation by the anesthetic.

There is no doubt that every inhalation anesthesia produces some irritation of the mucous membrane of the bronchial tree; and a mild bronchitis is a common sequel of the anesthesia in cases which never develop any pneumonia. That the bronchitis can be reduced to a minimum in the hands of a trained expert is undoubtedly also true. When, in the presence of a bronchitis, there occurs a partial collapse of a lung which persists more than from twenty-four to forty-eight hours, pneumonia may result. If the bronchitis is severe and anaerobic organisms are present, putrid pneumonia with cavitation may likewise result.

This explanation does not entirely solve the problem, but merely puts it back a step further. The question is, how does the collapse of the lung arise? At present, we have no answer. Pasteur thought that the collapse was the result of reflex inhibition of the movements of the diaphragm. Briscoe also assumes a reflex inhibition of the movements of the diaphragm and of its synergic and antagonistic muscles. He thought that this might be the result of an inflammation of the diaphragm or the pleural membrane covering it. These explanations are not at all satisfactory.

Prevention of Postoperative Pneumonia.—If we assume that the mode of origin of postoperative pneumonia is as outlined above, it is at once evident that, no matter how we try to prevent it, a certain number of cases are bound to occur. This is especially so in abdominal operations, as the collapse of the lung, which is the chief factor in the production of the pneumonia, is as yet unexplained and cannot be prevented. Of the other factors, the most important ones are: (1) previous acute or chronic inflammatory condition of the respiratory tract; (2) irritation of the respiratory tract by the anesthetic, and (3) hypostatic congestion in weakened and old persons.

As regards the first, operation should be postponed whenever possible, until the inflammation has subsided or disappeared. The second factor can be reduced to a minimum in the hands of the experienced and expert anesthetist. An attempt to prevent the third factor may be made by the use of digitalis. Mandl has used digitan as a prophylactic measure and states that he has obtained a smaller number of postoperative complications with its use. In weakened and old persons, and for the purpose of preventing hypostatic congestion as a result of circulatory failure, we believe that the use of digitalis is indicated as a prophylactic measure.

SUMMARY

1. This study was undertaken to determine (1) the incidence of pneumonia following operations under general anesthesia, and (2) the etiologic factors concerned in its production.

2. Of 2,932 operations under general anesthesia, eighty-one, or 2.76 per cent., were followed by postoperative pneumonia. Of these, there were 1,080 operations on the stomach, gallbladder and ducts, appendix, hernias, small intestine and large intestine, and exploratory laparotomies, with 6.29 per cent. of postoperative pneumonia; and 1,852 operations on other parts of the body, with 0.70 per cent. of postoperative pneumonia.

3. Operations on the stomach were followed by pneumonia in 13.8 per cent. of the cases.

4. There was only one case in which an upper lobe alone was involved, and only two cases in which an upper lobe was involved in addition to a lower lobe; in all the rest, there was involvement of one or of both lower lobes.

5. Twenty-five per cent. of the patients with postoperative pneumonia had some infection of the respiratory tract previous to the operation.

6. Bronchitis may result from the irritation of a healthy mucous membrane if the anesthetic is used in a large dose. Similarly, a mild tracheitis or bronchitis may be converted into a severe one.

7. Collapse of the lower lobe of the lung or of a portion of one is a not uncommon occurrence after abdominal operations. When this persists for a certain length of time, any infection of the bronchi has a great tendency to extend into the collapsed lung, resulting in pneumonia.

8. Hypostatic congestion predisposes to pneumonia in the same manner as postoperative collapse of the lung; in the presence of bronchitis, pneumonia may result.

9. Postoperative collapse of some portion of the lung may also occur after abdominal operations under local anesthesia. In the presence of bronchitis, pneumonia may result.

10. Prevention of pneumonia may be aided (1) by postponing the operation, whenever possible, until any respiratory inflammation has subsided; (2) by a minimum use of the anesthetic, administered preferably by an expert, and (3) by the use of digitalis whenever there is a suspicion that circulatory failure may occur. However, as long as massive collapse of the lung is not preventable, according to our present knowledge, a certain number of cases of postoperative pneumonia are bound to occur after abdominal operations.

141 West One Hundred and Tenth Street.

Uric Acid Eliminated in the Bile.—T. Brugsch and J. Rother announce that their research has demonstrated that a large proportion of the uric acid is eliminated in the bile. In their communication in the *Klinische Wochenschrift* **1**:1495, 1922, they emphasize that we must admit an enterotropic uric acid as well as a urotropic, and that the amount eliminated is the sum of the two, not the uric acid in the urine alone. The low uric acid output in gout may be explained by the diversion to the bile of a larger proportion of what is normally eliminated in the urine. This throws light on the benefit from measures to promote the flow of bile in treatment of gout. This enterotropic uric acid explains also the uric acid found in the stools; it comes from the bile. The functional tests of the exogenous purin metabolism are tottering. The necessity for fasting as a preliminary to estimation of the uric acid output is emphasized.

CHEST MEASUREMENT AS A GAGE OF BODY WEIGHT *

D. C. PARMENTER, M.D.
AND
HORACE GRAY, M.D.
BOSTON

Weight can be judged from body measurements most accurately by the use of standards that take notice of the thickness of the chest, for instance, the chest girth.[1] Furthermore, it has been shown by modern biometric methods that in normal men weight is more nearly correlated with chest girth than with height.[2] Then, evidence has been presented that the girth is more reliably measured by taking the arithmetical average of the inspiratory and expiratory girths than by taking the resting girth.

To certain further questions regarding the best method of chest measurement, this paper offers answers.

Is the weight as closely correlated with the girth at the xiphoid level as with the girth at the nipple level? If so, the former may be preferable, since it is clearly a more nearly bony measurement, and therefore probably a sounder gage in obese or emaciated persons. Besides, there is some evidence in the literature that at the xiphoid level the girth in the living approaches the girth on the denuded, i. e., bony frame, more closely than is the case at the nipple or at the axillary level.

Our evidence is derived from 100 candidates for the varsity crew at Harvard, measured by one of us (D. C. P.). These men were of the usual college age group of 18 to 22. They were all of better than average physique, and were organically sound. Mention is made of these facts with the idea that measurements on a group of almost supernormal young adults of this single type should perhaps produce a more accurate coefficient of correlation than the same measurements made on a hundred adults of different types as to physique, age and environment taken at random.

The coefficient of correlation of weight to chest-girth at the nipple level in the selected group was $+ 0.837$ with a probable error of 0.0202 versus 0.831 ± 0.0210 at the xiphoid level. The difference in these two coefficients, in the light of their probable errors, is insignificant; hence the answer to the question is yes.

Is weight correlated with the girth as closely at expiration as at the calculated midrespiratory phase used in all our previous papers? This question is suggested by the preference for the former by army examiners in order to compensate approximately noticeable stoutness. The latter wrote: "I noticed that the measurement of the chest girth (which varies with the state of nutrition) taken when the patient was first seen in the state of obesity or undernutrition gave a different value from that noted after the patient had been brought to a normal state of nutrition. Differences of five or more centimeters are not rare."

Our evidence at complete expiration is a correlation coefficient between weight and girth at the nipple level of 0.818 ± 0.0223 versus 0.806 ± 0.0236 at the xiphoid. Again the difference is inconsiderable, and the answer to the question is yes.

Should the girth be replaced by a caliper diameter? We have hitherto persisted in studying the tape perimeter, because it has seemed much more practical, and hence much likelier to be serviceable generally. However, all our attempts to refine the chest girth fall short of the precision we could wish, and recently Root and Miles [3] have noted emaciated diabetics whose weight for chest-girth was apparently normal. This and their other observations incline us to amend our insistence on girth to insistence on some measure of chest thickness, probably a caliper diameter. Accordingly, we now propose to study the correlation coefficient between the weight and sundry thoracic diameters.

* From the Department of Hygiene, Harvard University.

1. Gray, Horace, and Edmunds, G. H.: Indices of the State of Nutrition in Children, Am. J. Dis. Child. **23**: 226 (March) 1922. This includes a summary of earlier papers.
2. Gray, Horace: The Relation of Weight to Chest-Girth, Stature and Stem-Length, Am. J. Physical Anthrop., to be published; Against Measuring the Chest Girth at Rest, J. A. M. A. **79**: 349 (July 29) 1922.

HOMOPLASTIC AND HETEROPLASTIC TUMOR GRAFTS IN THE BRAIN *

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AND
ERNEST STURM
NEW YORK

Recently, Shirai [1] of Tokyo reported the interesting observation that heteroplastic tumors grow readily when inoculated into the brain, this being the first example of successful transplanting of heteroplastic tissues to normal adult animals. Previous to this, the tissues of one species had been transplanted to another only in the embryo [2] and in adult animals after exposure to roentgen rays.[3] Certain deductions had been made from these earlier experiments, which led to the conclusion that the lymphoid cell was an active and probably necessary part of the defensive mechanism against such tissue grafts. The basis for this conclusion was as follows: (*a*) Lymphocytes occur in large numbers about a heteroplastic graft. (*b*) Foreign tissues growing in the chick embryo called out no cellular reaction until after the eighteenth day of incubation, a time which corresponds with the limit of growth of the foreign tissue. After the appearance of the reaction, there is a rapid and complete disappearance of the graft.[4] (*c*) A graft of adult chicken spleen renders the embryo resistant to heteroplastic tissues during the early stages of incubation.[5] (*d*) Adult animals deprived of the major portion of this lymphoid tissue are deprived of their ability to destroy foreign tissue, and such grafts will grow actively; and the foreign tumors may be carried through several generations in irradiated animals.

EXPERIMENTAL DATA

The experiments to be reported here were undertaken with the idea of ascertaining whether the same factors are involved in determining the fate of tissue inoculated into the brain.

Fate of Heteroplastic Grafts in the Brain.—The site of inoculation selected for our first extensive experiment was the lateral posterior region of the cerebrum of rats, and the material used for grafting was a transplantable mouse sarcoma. The results of inoculation in this region were extremely irregular. An occasional excellent growth was obtained, but more often the

3. Root, H. F., and Miles, W. R.: Physical Measurements of Diabetic Patients, with a Discussion of Present Weight Standards, to be published.

* From the Rockefeller Institute for Medical Research.

1. Shirai, Y.: Japan M. World **1**: 14 (June) 1921; **1**: 15 (Oct.) 1921.
2. Murphy, James B.: J. Exper. Med. **17**: 482, 1913.
3. Murphy, James B.: Heteroplastic Tissue Grafting Effected Through Roentgen-Ray Lymphoid Destruction, J. A. M. A. **62**: 1459 (May 9) 1914.
4. Murphy, James B.: J. Exper. Med. **19**: 181, 1914.
5. Murphy, James B.: J. Exper. Med. **19**: 513, 1914.

graft remains were found embedded in a mass of reaction tissue. A careful histologic study revealed the fact that the grafts which came in contact with the ventricle induced a reaction similar to that which takes place about a foreign graft in the subcutaneous tissue, followed by necrosis of the introduced cells. As the ventricle is quite near the surface in this part of the brain, it was only rarely that the inoculated material failed to come in contact with the ventricle at some point. As a result of this observation, another site was selected for the inoculations; namely, the frontal lobe, where the ventricle is much deeper and considerably thinned out. Grafts in this location grew in from 80 to 100 per cent. of the animals inoculated, with no cellular reaction taking place about them. In practically every case of failure, it could be shown that the graft had come in contact with the ventricle.

By selecting this site, a mouse sarcoma was successfully grown in the brains of rats, guinea-pigs and pigeons, and a mouse carcinoma was likewise transplanted into the brain of foreign species, but with the latter tumor the rate of growth was less rapid.

Influence of the Spleen on Heteroplastic Grafts in the Brain.—The tip of the spleen of a rat was removed and together with a bit of mouse sarcoma was inoculated into the frontal lobe of the same rat's brain. As a control, a piece of the same tumor was implanted in the same region of the brain of another rat without the addition of spleen tissue. In fifty rats inoculated with spleen and tumor, there was complete inhibition of growth of the tumor in 84 per cent. of the animals inoculated; while, in the remaining 16 per cent., only an occasional small group of tumor cells was found, and in only one or two instances did sizable tumors occur. Of the forty-eight control rats inoculated with the sarcoma alone, 83 per cent. developed tumors, some of which replaced almost the entire frontal lobe.

Spleen tissue derived from rats other than the individual to be inoculated failed to exercise any inhibitory effect on the growth of the foreign tumor in the brain.

Fate of Homoplastic Grafts in Resistant Animals.—Previous observations indicated that the mechanism involved in the resistance to homoplastic grafts was similar to that which controls heteroplastic implants. If this is true, animals with either natural or induced resistance to tumors of their own species should give no evidence of this resistance when the tumor is inoculated in the brain.

Mice immunized to the transplanted tumors by the usual method were inoculated ten days later with grafts of mouse carcinoma, inoculation being made both into the subcutaneous tissues and into the brain. The subcutaneous inoculation produced tumors in only 21 per cent of the sixty-five animals, while the grafts in the brain produced tumors in 89 per cent. Control nonimmunized mice inoculated with the same material developed brain tumors in 91.9 per cent. and subcutaneous tumors in 82.2 per cent of the sixty-three mice inoculated.

Thus, it is evident that the brain gives no manifestation of the induced resistance to homotransplants of tumors.

SUMMARY

Heteroplastic tumor tissue will grow readily when inoculated into the cerebrum, provided the graft does not come in contact with the ventricle. The tumors grow rapidly in the brain substance, with no cellular reaction taking place about them. However, when such grafts come in contact with the ventricle, a cellular reaction results, similar to that observed about a subcutaneous heteroplastic graft.

A bit of the animal's own spleen inoculated into the brain, along with the heteroplastic tumor tissue, prevents the growth of the foreign cells. This action is absent when the spleen is derived from another animal, even of the same species.

Mice highly resistant to subcutaneous transplants of mouse tumor give no evidence of this resistance when the tumor is inoculated into the brain.

Clinical Notes, Suggestions, and New Instruments

SUBMUCOUS SPHINCTOTOMY

PRELIMINARY REPORT *

EDWARD G. MARTIN, M.D., DETROIT
Proctologist, Detroit Receiving Hospital; Associate Proctologist, Harper Hospital; Associate Professor of Proctology, Detroit College of Medicine and Surgery

Presumably the earliest treatment for anal ulcer consisted of the local application of various caustics, stimulants and sedatives; it is a rather interesting observation that most of the treatment prescribed by other than proctologists today

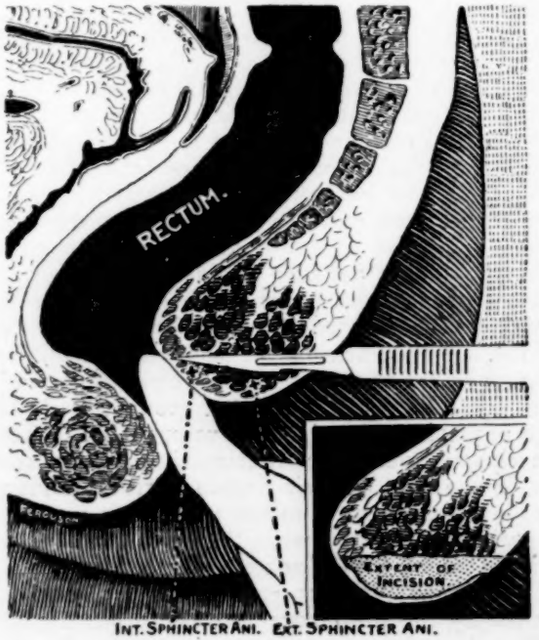

Fig. 1.—Technic of submucous sphinctotomy.

consists of the same early methods. The next step in advance, namely, dilation of the sphincter, was a marked step forward toward securing rapid recovery, but has within the last few years been supplanted among the more experienced by the actual open incision into the sphincter muscle to put it at rest. This method has proved satisfactory both in the immediate relief of pain and in the more certain healing of the ulcer. It has, however, one definite objection—the open incision at times has been rather prolonged in final healing, especially at the anal margin.

In the effort to avoid this open incision and its subsequent infection, I have attempted what I have chosen to call a submucous sphinctotomy, the name being my own contraction of the word sphincterotomy.

Submucous sphinctotomy consists in plunging a knife through an iodized area of skin, well posterior to the anus,

* Read before the American Proctological Society, St. Louis, May 23, 1922.

passing diagonally in and upward through the inner third of the external and through the internal sphincter, about one half of the distance back through the anal canal. With the index finger in the anus as a guide, the incision upward is completed, care being taken to avoid cutting through into the anus. The few fibers just under the anal lining, remaining in continuity, are cared for at the finish of the operation by a gentle bivalve dilation. Before or after the sphinctot-

Fig. 2.—Right lateral position, point of entrance, and knife control with left index finger.

omy is performed, all anal diseased tissue is treated, such as excision of indurated areas of the ulcer and cauterization with silver in 5 per cent. solution. Acute or recent fissures require no local repair other than application of silver, and the sphinctotomy. Through the puncture wound in the skin any blood may drain away, and if careful asepsis has been preserved there need be no fear of infection; but if infection should ensue, by simply opening down through the area, the

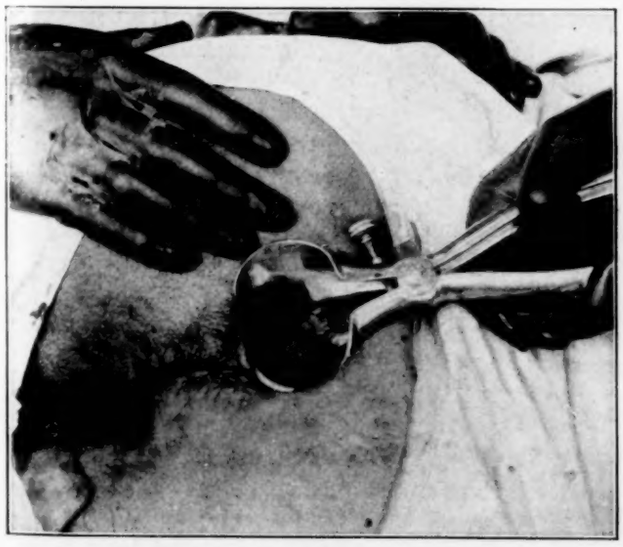

Fig. 3.—Gentle bivalve dilation following sphinctotomy; extent of dilation determined by direct vision; posterior anal lining should not be torn.

abscess is drained with healing expected as in the open operation. In my own experience I have had no infection in more than fifty of these cases.

CONCLUSIONS

Sphinctotomy is an aseptic procedure. It is easily and quickly done. It demonstrates the possibility of improving the aseptic technic in rectal surgery. The results have been satisfactory so far, and warrant a further trial of the method.

1447 David Whitney Building.

A HYPODERMIC NEEDLE STERILIZER AND SOLUTION BOILER

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Major, Medical Corps, U. S. Army

This device, for the rapid sterilization of hypodermic syringes, hypodermic needles and the water in which hypodermic tables may be dissolved, also provides a sterile, noncorrosive receptacle in which solutions of hypodermic tablets may be made. It consists of a metal case in which a silver trough 1¾ inches long of 5 c.c. capacity is permanently mounted at the top immediately above the burner of a removable alcohol lamp. The burner is so constructed that the fuel chamber is perfectly vented, and instead of overflowing when it becomes heated, the alcohol vapor is passed into the flame and consumed. The device is 2⅝ inches high, 2 inches wide and 1 inch thick, and weighs 5 ounces. The lamp holds 15 c.c. of denatured alcohol, and will burn for one hour. The heat is so intense that it will bring the 5 c.c. of water in the trough, including a hypodermic needle, to the boiling point in one minute. The flame is protected from drafts by the container.

Fig. 1. — Hypodermic needle sterilizer and solution boiler.

The hypodermic needle is placed in the trough filled with water and the lamp is lighted. As soon as the water boils, the barrel of the hypodermic syringe may be sterilized by repeatedly rinsing it with boiling water from the trough. The sterile needle is then attached to the syringe by means of dressing forceps. The syringe is then filled with boiling water, the lamp extinguished, and the remaining water in the trough discarded.

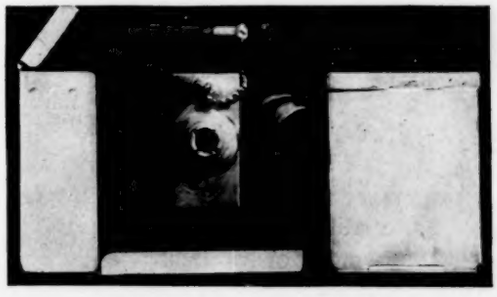

Fig. 2.—Various parts of apparatus.

The hypodermic tablet is then placed in the sterile silver trough and the hot water expelled from the syringe to dissolve the tablet, after which the solution is picked up by the syringe.

A Case of Vitiligo Treated with Pituitary Gland Substance.—DR. ROYCE B. JOSSELYN, Portland, Maine, writes: A robust man, aged 40, referred to me in August, 1921, had always been well, except for a nervous breakdown several years previously. Physical examination was negative. Irregular areas of vitiligo were present on the backs of both forearms and wrists, and the back and side of the neck. The patient said that these areas first appeared about two years before and were growing larger and more noticeable. Pituitary gland (entire), desiccated, was prescribed in tablet form. The patient was again seen recently after more than a year's interval, and the areas of vitiligo had entirely disappeared. No abnormality of the thyroid could be demonstrated in this case, although mild exophthalmic goiter frequently coexists.

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SATURDAY, DECEMBER 23, 1922

LOUIS PASTEUR—BORN DECEMBER 27, 1822

The hundredth anniversary of Pasteur's birth is an appropriate occasion for recalling briefly his services to medicine and to humanity. The descendant of old families of working country people, he received through the sacrifices of his parents and sisters a thorough education, became a deep student of chemistry, and while still a young man solved the problem of the different rotatory effects on light by tartrate crystals of the same chemical composition. This achievement in crystallography and molecular arrangement became, so to speak, the bridge over which he passed into an intensive study of various fermentations, as he soon learned that the tartrates developed in fermenting organic materials. In the course of these studies, he observed that in the fermentation by *Penicillium glaucum* of ammonium paratartrate, the dextrorotatory acid alone putrefied, that is, fermented, and for the reason, he says, that "the ferments of that fermentation feed more easily on the right than on the left molecules." As indicated by these words, he saw in fermentations and putrefactions the specific effects of living things, and had learned to produce particular fermentations by introducing the "pure seed" into suitable infusions or juices. This is the real starting point of bacteriology, industrial as well as pathogenic, and the first practical results were improvements directed by Pasteur in the making of wines and vinegars. He showed how to secure the proper ferments and how to exclude or destroy undesirable ferments that caused the so-called diseases of wines and similar products. Heating to destroy ferments or micro-organisms, soon called pasteurization, was introduced by Pasteur and applied first to wines.

The thought soon came to him that it would be "desirable to push these studies far enough to prepare the road for a serious research in the origin of various diseases" (1860); a little later he said that all his ambition was to arrive at the knowledge of putrid and contagious diseases. Perhaps the idea was prompted by this remarkable statement of Robert Boyle (1627-1691):

> He that thoroughly understands the nature of ferments and fermentation shall be much better able than he that ignores them to give a fair account of divers phenomena of several diseases (fevers as well as others), which will perhaps be never properly understood without an insight into the doctrine of fermentation.

Before long, Pasteur's results were given practical application of a far wider significance; for in 1867 Joseph Lister began to work out the antiseptic method in surgery on their basis. In 1874, Lister in a letter to Pasteur said:

> Allow me to take this opportunity to tender you my most cordial thanks for having, by your brilliant researches, demonstrated to me the truth of the germ theory of putrefaction, and thus furnished me with the principle upon which alone the antiseptic system can be carried out.

But Pasteur's views on fermentation did not go unchallenged, and he was soon in the midst of that long controversy about spontaneous generation that he felt must be settled before the idea of the spontaneity of infectious diseases would vanish forever so that men would be free to think clearly about infection. The experiments by which he showed that albuminous infusions remained sterile indefinitely in flasks provided with long and tortuous necks, so that the bacteria in the air were deposited on the walls of the glass as the air entered the flask, finally silenced for good the advocates of spontaneous generation. In the meantime, he was sent to study the silkworm disease that was threatening the silk industry of France, and after five years of work, interrupted by a stroke of apoplexy in 1868 when he was 46, a method was perfected of breeding from selected healthy eggs, of separating the well from the infected, that solved the problem of prevention in this case and led him to hope that measures might be found to control epidemic diseases in general.

Overcoming by great effort the depression caused by the Franco-Prussian War, and firmly determined to exalt France through his discoveries, in the sixth decade of his life he demonstrated by celebrated experiments with anthrax and chicken cholera that specific immunity can be produced by the introduction of living pathogenic microbes in attenuated form, and vaccination with known virus was established for the first time. He said, "I have lent to the expression vaccination an extension that I hope science will consecrate, as an homage to the merit and immense services rendered to humanity by one of the greatest of Englishmen—Jenner."

In 1873, Pasteur became an associate member of the Academy of Medicine in Paris, and took an active part in discussions, mostly controversial, on infectious problems. In a discussion [1] in 1879 on puerperal fever, which then was epidemic in Paris hospitals, with a frightful death rate, he drew unexpectedly on the blackboard an organism in small chains of spherical grains and said, "There, that is the cause of puerperal fever"; but of this discovery he never made a formal report and in the books his name is not associated as it should be with the streptococcus. At this time he stated also that the

1. Bull. de l'Acad. de méd. **8**: 238, 1879.

physician and his assistants carry the microbe from the sick woman to the well, and urged the use of boric acid and water heated to 115 C. He described, too, the presence of heaps of cocci in boils and in osteomyelitis, which he called a boil in bone. His outline, in 1877, of the principles of what we call aseptic surgery merits repetition:

> If I had the honor of being a surgeon, convinced as I am of the dangers caused by the germs of microbes scattered on the surface of every object, particularly in the hospitals, not only would I use absolutely clean instruments, but, after cleansing my hands with the greatest care and putting them quickly through a flame (an easy thing to do with a little practice), I would only make use of charpie, bandages, and sponges which had previously been raised to a heat of 130 to 150 C.; I would employ only water which had been heated to a temperature of 110 to 120 C. All that is easy in practice, and in that way, I should still have to fear the germs suspended in the atmosphere surrounding the bed of the patient; but observation shows us every day that the number of those germs is almost insignificant compared to that of those which lie scattered on the surface of objects, or in the clearest ordinary water.

These references reveal what an insight he had attained into human infections, a phase of his achievements that is frequently overlooked.

LOUIS PASTEUR, 1822-1895

The last masterstroke, which carried his name all over the world and led to the establishment by international subscription of the Pasteur Institute in 1888, was the discovery of a method of preventing rabies after the bite. The long period of incubation in rabies led to the idea of "attempting to establish, during the interval before the first symptom, a refractory state in the bitten subject." This discovery, by which the death rate of rabies has been reduced from at least 16 to less than 1 per cent., the recondite experiments to standardize properly in different strengths the unknown virus, the repeated trial on dogs before and after infection, the treatment of the Meister boy and the other early patients, are unequaled in interest in experimental medicine. It recalls Jenner's experiment of inoculation of cowpox, because, in both, the first subjects were young boys.

That germs cause disease was an ancient conception. Pasteur, more than any one else, by incontrovertible experiments, showed us the truth and the power to control infectious diseases in man, animals and plants. The benefit of this demonstration is incalculable. He was fortunate in that, while still living, his work was accepted and his name praised on all sides. He was a gentle soul, deeply religious, wholly unselfish, unspoiled to the end, but fearless and tireless in the defense of truth as he saw it. "If I have sometimes disturbed the calm of our academies by somewhat violent discussions, it was because I was passionately defending the truth."

ILLITERACY AND MORTALITY

A successful campaign in the interest of public health must be based on something more than a knowledge of the mode of transmission of communicable disease. This, without doubt, is one of the foremost considerations in any program for the promotion of the public health, as it also is in relation to personal prophylaxis. But the problems of preventive medicine involve factors of widely different origin and significance, each of which must be evaluated and assigned a corresponding responsibility. Premature breakdown and premature death, for example, have been attributed to a diversity of causes, such as heredity, infections, poisons, mental strain, physical strain, mental inactivity, physical inactivity, accidents and improper diet. Obviously, each of these categories of alleged influences demands special and somewhat unlike consideration in any effort to control or modify the mortality of a group. As Chief Justice Taft has remarked, "while it is true that to the public mind there is a more lurid and spectacular menace in such diseases as smallpox, yellow fever and plague, medical men and public health workers are beginning to realize that, with the warfare against such maladies well organized, it is now time to give attention to the heavy loss from lowered physical efficiency and chronic preventable disease, a loss exceeding in magnitude that sustained from the more widely feared communicable diseases."

No one will question that ignorance acts as a stumbling block in the path to progress in matters of health as in other fields of human welfare. Pearl[1] has expressed the conviction that one of the greatest difficulties with which the health officer has to contend, in

1. Pearl, Raymond: The Vitality of the Peoples of America, Am. J. Hyg. 1:592, 1921.

his efforts to ameliorate the conditions which make for morbidity and mortality, must surely be the ignorance of great masses of the population with which he has to deal. So much of effective public health work goes back, on final analysis, to a basis of personal hygiene, he adds, that the dense ignorance and, what is worse, sheer stupidity of a not negligible fraction of our population must be a limiting factor.

According to the census of 1910, about five and a half million persons in this country were illiterate. More than a third of all illiterates at that time were country dwellers. The rural illiteracy problem, according to the available statistics, lies with the negroes and native whites, and the urban with the foreign born. Pearl and Ilsley [2] of the Johns Hopkins University School of Hygiene and Public Health have attempted to evaluate statistically the possible correlation of mortality in American cities and illiteracy, which must inevitably contribute to detrimental ignorance. Their study indicates that the percentage of illiteracy in an urban community in this country is a significant factor in influencing unfavorably the death rate of the community from all causes, and under certain particular causes, notably diarrhea and enteritis, pneumonia, diphtheria and measles. The typhoid fever, whooping cough and puerperal fever death rates are apparently not significantly correlated with the percentage of illiteracy, for probably quite different reasons in the different cases. Furthermore, there is apparently no significant net correlation between the death rates from either tuberculosis of the lungs or nephritis with the percentage of illiteracy, presumably for the reason that in these diseases the innate constitution of the individual is an etiologic fact of great importance. If the ignorance which illiteracy postulates can seriously affect the equipment of our population for "meeting the battle of existence," the tentative conclusions just reviewed present a strong argument in favor of certain types of elementary education as a public health measure.

2. Pearl, Raymond, and Ilsley, M. L.: Preliminary Discussion of the Correlation Between Illiteracy and Mortality in American Cities, Am. J. Hyg. **2**: 587 (Sept.) 1922.

THE FATE OF ALCOHOL IN THE BODY

To any one who follows the widely debated question of prohibition, it is evident that a variety of unlike considerations enter into the various arguments advanced. Some of them are essentially legal in character and deal with the constitutional question of so-called "personal freedom"; others are economic in bearing; and much of the discussion centers in sociological problems of admittedly great importance. It is doubtful, however, whether in ultimate analysis any aspect of the subject assumes greater significance in the responsibility for a rational treatment of the issues involved than does the physiologic evidence that can be brought to bear upon it. For example, as a recent writer [1] on this topic has frankly admitted, to interpret correctly the mortality statistics relating to moderate drinkers and total abstainers, one must have some knowledge of the physiologic effects of alcohol in so-called moderate doses, a knowledge often lacking in those who assume to interpret such statistics. If it could be shown, he adds, that small doses of alcohol produce no ascertainable ill effects on the human organism, the higher mortality among the moderate drinkers, as compared to total abstainers, might have to be explained as being due to some as yet unrecognized cause or causes other than alcohol.

This is essentially a challenge, first of all, to get the physiologic and pharmacologic facts about alcohol—and perhaps one might add, in the light of scientific history, the psychologic facts. There will be no dispute that ethyl alcohol introduced into the stomach begins quickly to be absorbed and to be utilized to some extent in the metabolism, and that, if given in sufficient amount, it soon produces characteristic subjective effects. It has not always been so generally recognized that after its ingestion alcohol is found in the blood and also in other body fluids and tissues, particularly at or following the time in which it appears maximally in the blood. The extreme readiness with which alcohol can be distributed in the body is illustrated, first of all, by its behavior in the stomach. Water is absorbed only slowly, if at all, through the gastric mucosa; alcohol promptly penetrates the stomach lining, and is absorbed even when there is no escape for it through the pylorus into the more permeable region of the small intestine. Accordingly, there is every reason to assume that few substances surpass alcohol, when once it reaches the blood, in the readiness and rapidity with which they can diffuse to every part of the body.

The concentration of alcohol in the circulating medium, therefore, must be of great significance in the distribution and consequent fate or effects of this substance. Its content in the blood, obviously, might be determined by the total amount and concentration of the alcoholic fluid available for absorption from the alimentary tract, for this represents the total available supply; again, the capacity of the organism to excrete, destroy or store alcohol must represent an equally important feature in the adjustment of the alcohol balance sheet. If it is true that the objectionable effects of alcohol, whether they are designated as intoxication or incoordination or merely by the more euphonious expression, mild inebriation, parallel the rising and sinking of the alcohol content of the blood,[2] the factors that modify the latter need to be established with great precision.

1. Fisher, Irving, and Fisk, E. L.: How to Live, New York, 1919, pp. 307-308.

2. Gréhant: Compt. rend. Soc. de biol. **55**: 1264, 1903. Schweisheimer: Deutsch. Arch. f. klin. Med. **109**: 271, 1913.

Obvious difficulties present themselves in any attempt to secure numerous samples of blood from human subjects for analysis after ingestion of alcohol. Consequently, it has been proposed, in view of the ready distribution of the substance, that the urine might contain alcohol in comparable proportions as a result of its diffusion through the kidneys. In that event, the changing content of alcohol in the excretions would afford an indication of its level in the blood. In the elaborate studies of Miles,[3] he has actually found that, after an intake of alcohol, the blood and the urine reach their maximal alcohol concentration at about the same time; and, while not identical, still the urine-alcohol curve is very useful for comparison with the time relations of the objective measurements of the alcohol effect on the central nervous system. Herein lies a method of great promise in the investigation of the physiologic effects of alcohol, now that the urine can be depended on to furnish a fairly reliable index of the condition of the blood.

The relative danger or merits—the choice of the vocabulary seems to be modified by personal points of view—of potable fluid of respectively high and low alcoholic strength, such as are contrasted in the distilled liquors and the fermented beverages, has attained controversial prominence. Miles' studies on man show that the same weight of alcohol taken in a concentrated solution produces a definitely higher alcohol concentration in both blood and urine than when taken in a much more dilute solution. Subjects thoroughly habituated to alcohol absorb the 2.75 per cent. dose about the same as nonhabituated individuals. Changes in the amount of urine per minute do not perceptibly influence the concentration of alcohol in the urine. According to Miles, the alcohol concentration in the venous blood and in the urine after the ingestion of 27.5 gm. of absolute ethyl alcohol diluted in 1,000 c.c. or 100 c.c., respectively, of fluid is not identical and does not run parallel in the first two hours. Taken as 2.75 per cent., the concentrations in the venous blood at twenty, forty, seventy and 120 minutes after ingestion are 18, 24, 30 and 30 mg. of alcohol for each hundred cubic centimeters. The corresponding urine values are 15, 37, 47 and 43 mg. The urine concentration is from 40 to 50 per cent. higher than the blood at from forty minutes to two hours after ingestion, and it is also higher than that of the plasma by from 20 to 25 per cent. The alcohol taken as 27.5 per cent. solution gave, at the intervals specified, 28, 42, 43 and 36 mg. in the blood, and 24, 51, 65 and 49 mg. in the urine.

It should not be erroneously concluded, from what has been stated, that most of the alcohol ingested by man is eliminated again like common salt or other mineral nutrients, and many drugs. It is the parallelism of the momentary content in blood and urine, rather than the absolute output, that requires emphasis. The amount of ingested alcohol that is excreted by the urine rarely exceeds 3 per cent. In the classic experiments of Atwater and Benedict in which human subjects took 72 gm. of absolute alcohol diluted and divided into six doses two or three hours apart, the total elimination through the kidneys was scarcely 0.2 per cent. Miles points out that such a variety of results may be expected, since the elimination will be influenced by the amount and dilution of the alcohol taken, the presence of food in the stomach, the amount of muscular exercise following ingestion, and the frequency of urination. Alcohol does not burn well in more than small amounts in the body, nor is it eliminated readily in large amounts. These are among the foremost physiologic objections to its sojourn in any considerable concentration in the blood and the tissues.

3. Miles, W. R.: The Comparative Concentrations of Alcohol in Human Blood and Urine at Intervals After Ingestion, J. Pharmacol. & Exper. Therap. **20**: 265 (Nov.) 1922.

FATIGUE AND RESISTANCE TO DISEASE

The study of industrial efficiency in connection with the prosecution of the World War tended to accentuate certain aspects of human welfare that had until then attracted little consideration. Environmental conditions, such as temperature, humidity, ventilation and food resources, long believed to play a part in the determination of human comfort and physical well-being as well as muscular efficiency, were subjected to new examinations and evaluation with respect to their possible bearing on fatigue or overfatigue. The avoidance of excessive fatigue became the keynote of various preventive measures in which human health and activity were concerned. Incidentally, the conviction gained ground that fatigue plays a significant part in the causation of disease; thus, Sir James Paget is quoted as writing: "You will find that fatigue has a larger share in the promotion or transmission of disease than any other single causal condition you can name." [1]

In preventive medicine, mere "guesses" as to the cause of illness have often proved to be singularly illusory. With respect to fatigue, reference is frequently made to the studies of Abbott and Gildersleeve,[2] who found that when rabbits were inoculated with pathogenic bacteria and were then fatigued by running several hours each day in a wheel, they died; while other rabbits, inoculated but not fatigued, survived. With the fatigued rabbits the opsonic index, which may be interpreted to the layman as that condition of the blood which signifies the degree of susceptibility of the organism to bacterial infection, was gradually reduced as the fatigue progressed. Cessation of the fatiguing process for even a day resulted in a partial recovery of depression in the opsonic index.

Realizing that the experimental evidence of the relation between acute fatigue or physical exhaustion and

1. Lee, F. S.: The Human Machine and Industrial Efficiency, New York, 1918, p. 79.
2. Abbott and Gildersleeve: The Influence of Muscular Fatigue and of Alcohol upon Certain of the Normal Defenses, Univ. Pennsylvania M. Bull. **23**: 169, 1910.

susceptibility to infection has been exceedingly meager, Oppenheimer and Spaeth [3] have undertaken a new investigation of the problem in the School of Hygiene and Public Health at the Johns Hopkins University. The outcome of observations on rats in which fatigue was artificially induced by enforced muscular exercise showed quite unexpectedly a definite increase rather than decrease of resistance in these animals to lethal doses of pneumococci. Subsequently the question has been reinvestigated on guinea-pigs by the Baltimore physiologists.[4] The same increased resistance to the infections was observed in this species, too. Perhaps hereafter when sickness is reported to "arise from the factory," fatigue alone cannot be held clearly responsible, so far, at least, as infectious disease is concerned. More proofs must now be forthcoming before work is made too largely chargeable in public health programs for reform.

Current Comment

THE REGENERATION OF RED BLOOD CELLS

Despite the comparative fixity in the numbers of red blood corpuscles circulating in a unit of blood plasma—a fixity so marked that even small deviations in the erythrocyte "count" are looked on as signs of a pathologic condition in the organism—students of hematology realize that the blood cells are always in a state of flux. The older ones are disintegrated, and newer ones enter the blood stream to take their place. The details of these changes are not yet clearly established, although it is taught that hematopoiesis, or the formation of red corpuscles, goes on continually, the process being accelerated after hemorrhages and in certain pathologic conditions. Sometimes, when the increase in production is marked, red corpuscles or normoblasts, still retaining their nuclei, are forced into the circulation. In a recent study of the sizes of the erythrocytes in man under a variety of conditions, Price-Jones [5] observed that the mean diameter of the red cells in pernicious anemia is larger, and in anemia following hemorrhage is smaller, than in health. In both of these conditions the range of size and variability of the red cell diameters is greater than in health. The conclusion seems justified that this outcome is due to the fact that the blood contains mixtures of different kinds of cells. It is known that abnormally large cells may arise from some abnormal excitation of the bone marrow, possibly in only small portions of it. This has been regarded by some as the "pernicious" feature. On the other hand, it has also often been noted that after hemorrhage the overstimulation of the bone marrow as the result of the attendant anemia may lead to an output of small cells among those of more nearly normal size. From such complicated conditions one can well understand Sabin's [6] contention that "we are at the present time in the beginning of the experimental phase of hematology," and that blood must be considered as only a part of a larger subject. The organism must not only replace blood cells that have been lost or destroyed, but also produce erythrocytes of physiologically proper sorts.

HYGEIA: A JOURNAL OF INDIVIDUAL AND COMMUNITY HEALTH

The response of physicians to the announcements of the publication of *Hygeia* has been most gratifying. Many physicians have written enthusiastic letters endorsing and encouraging the undertaking, and some have offered to cooperate actively in promoting circulation of the new magazine. One county medical society is considering the giving of complimentary subscriptions to each public health agency and each grade school superintendent in the county. This week, further information regarding the new publication is given on a colored insert sheet. Physicians are now offered the privilege of ordering several subscriptions for lay friends or patients at the special introductory rate of eight months for one dollar. A coupon is attached to the insert, and may be used for this purpose. Each person for whom a subscription is ordered will receive an attractive card stating that the publication will come to him as a gift from the donor whose name will be inserted. Those physicians who are eager to see this publication properly introduced to the general public will not hesitate to avail themselves of this opportunity.

YAWS IN THE UNITED STATES

The fact that, in a country as near to the United States as is Santo Domingo, a disease may be sufficiently prevalent to permit observers to report a study of more than a thousand cases, with an incidence of from 100 to 300 each day,[7] whereas the discovery of a single case of the same malady in this country excites evident interest among scientific clinicians because of its rarity,[8] furnishes food for reflection. We refer to yaws, or frambesia tropica, a disease due to a spirochetal micro-organism, *Spirochaeta pertenuis*, and easily communicable and disabling. Despite its great prevalence in certain parts of the West Indies, American dermatologists seem to be agreed that yaws is rare in the United States. This conclusion is justified by the recent review of Fox,[8] in consultation with many American colleagues, of recorded instances in the literature. Yaws often simulates syphilis, both clinically and pathologically. The etiologic microorganisms can be distinguished only by skilful technic in the hands of trained workers. Yaws, however, is a much less serious disease, as it does not attack the central nervous system or viscera and is not transmitted by heredity. Furthermore, it is much more

3. Oppenheimer, E. H., and Spaeth, R. A.: Am. J. Hyg. **2**: 51, 1922.
4. Oppenheimer, E. H., and Spaeth, R. A.: The Relation Between Fatigue and the Susceptibility of Guinea-Pigs to Infections of Type I Pneumococcus, Am. J. Hyg. **2**: 527 (Sept.) 1922.
5. Price-Jones, C.: The Diameters of Red Cells in Pernicious Anaemia and in Anaemia Following Hemorrhage, J. Path. & Bacteriol. **25**: 487 (Oct.) 1922.
6. Sabin, Florence: The Origin of the Cells of the Blood, Physiol. Rev. **2**: 38 (Jan.) 1922.
7. Moss, W. L., and Bigelow, G. H.: Yaws: An Analysis of 1,046 Cases in the Dominican Republic, Bull. Johns Hopkins Hosp. **33**: 43 (Feb.) 1922.
8. Fox, Howard: The Prevalence of Yaws (Frambesia tropica) in the United States, Arch. Dermat. & Syph. **6**: 657 (Dec.) 1922.

easily eradicated by arsphenamin than is syphilis. It might be supposed that, because of the resemblances between syphilis and yaws, the latter has often escaped recognition as such and has been falsely diagnosed. This seems unlikely to Fox, in view of the large number of well trained dermatologists scattered over different sections of the United States. He ventures the belief, therefore, that yaws would probably not thrive in the northern part of this country, as it is strictly a tropical disease. The majority of the cases reported in northern seaports have evidently been imported from foreign countries. Why climate should be the decisive factor is not easy to conjecture. As Pusey[9] has pointed out, communication between gulf ports and the West Indies has been very intimate since the settlement of the country; the conditions among the negroes in the subtropical districts along the gulf are closely similar to those in the West Indies, and it is remarkable that the disease has not obtained a foothold there. Preventive medicine is obviously interested in ascertaining precisely why yaws either cannot or has not thrived in the United States.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ALABAMA

Medical Society Elections.—At the annual meeting of the Mobile County Medical Society held in Mobile, December 2, under the presidency of Dr. Edward S. Sledge, the following officers were elected: president, Dr. George C. Kilpatrick; vice president, Dr. William W. Perdue; secretary, Dr. Willis W. Scales, and treasurer, Dr. Edly W. Cawthorn.——Madison County reelected Dr. Carl A. Grote president of the medical society and Dr. Thomas E. Dryer vice president.

Gorgas Memorial Unveiled.—A drinking fountain, presented by the local chapter of the Daughters of the American Revolution to the Gorgas Public School, was unveiled, November 24, at Toulminville, a suburb of Mobile, as a memorial to General William C. Gorgas. Toulminville was the birthplace of the great sanitarian. A relative of General Gorgas unveiled the fountain, and Major Earl North, representing the U. S. Army, delivered the oration in connection with the ceremony.

ARKANSAS

Hospital Cornerstone Laid.—The cornerstone of the new St. Edward's Infirmary at Fort Smith was laid, October 22, with appropriate ceremonies. The new infirmary will be four stories high with accommodations for 150 patients. It will be erected at a cost of $200,000 and will be operated by the Sisters of Mercy of Fort Smith.

Clinic for War Veterans.—The federal government has leased the entire second floor of the Foreman Block, Texarkana, for the use of a general clinic for ex-service men. The rooms have been remodeled at a cost of $5,000. The clinic will be opened, Jan. 1, 1923, with a full staff of physicians, dentists, pharmacists and nurses. The vocational training quarters for soldiers will have offices in the same building.

CALIFORNIA

Personal.—Dr. J. M. Scanland, formerly medical director of the Montana State Hospital, Warm Springs, has been appointed superintendent of the Napa State Hospital, Napa, to succeed Dr. A. C. Matthews.——Dr. Harry L. Carpenter, Richmond, has been elected president of the Contra-Costa County Medical Society.——Dr. John H. Lang has resigned as city physician of Fullerton, a position he has held for ten years. Dr. C. Gilbertson of Fullerton will succeed Dr. Lang.

COLORADO

County Society Election.—At the annual meeting of the Larimer County Medical Society at Fort Collins, December 6, Dr. David W. McCarthy, Berthoud, was elected president; Dr. John G. McFadden, Loveland, vice president, and Dr. Thaddeus C. Brown, Fort Collins, secretary.

Smallpox in Denver.—Between January 1 and Dec. 2, 1922, Denver had 660 cases of smallpox with 226 deaths. In 1916, Denver had only ten cases, with no deaths; the number of cases increased each year, but there were no deaths until 1920, when among 953 cases there was one death; in 1921, there were 924 cases with thirty-seven deaths. The first fatality of this outbreak occurred during the week ending Nov. 12, 1921. *Public Health Reports,* Dec. 15, 1922. in commenting on these figures, says: "The direct source of the Denver outbreak may have been the same as the unknown source of the Kansas City outbreak. Unfortunately, publicity, which in Kansas City secured sufficient general vaccination to stop the outbreak with the appearance of warm weather, was not equally effective in Denver, and the fatal and highly contagious strain of the disease prevailed through the summer, breaking out again characteristically with the cooler season."

CONNECTICUT

Donation to Yale.—Dr. John P. Peters, associate professor of medicine at the Yale University School of Medicine, New Haven, has presented the library of his father, Prof. John P. Peters, to the university. The collection comprises about 1,200 volumes.

DISTRICT OF COLUMBIA

Heart Clinics Advocated.—Creation of public heart clinics throughout the city of Washington has been advocated by Dr. William C. Fowler, district health officer. At the present time, the number of deaths from heart disease in the District is greater than from any other disease, being rated at 152 per hundred thousand population.

Second Physiotherapy Course.—A second course in physiotherapy will be given at the Walter Reed General Hospital, Washington, beginning Feb. 27, 1923, and continuing for a period of four months. It is open to women who have had at least two years of training in an approved school of physical education. For further information, apply to the Commanding Officer, Walter Reed General Hospital, Attention of the Department of Physiotherapy.

FLORIDA

Quarantine Station Moved.—The War Department has moved the quarantine station headquarters from Mullet Key to Tampa; since the abandonment of Forts Dade and DeSoto, Mullet Key has been almost isolated from Tampa. This change will save a day's time to local shipping, which had to stop at Mullet Key for examination before docking at Tampa.

GEORGIA

Academy of Medicine of Fulton.—It was announced in THE JOURNAL recently that the Fulton County Medical Society had bought a house in Atlanta as headquarters for the society. This was formally dedicated with appropriate ceremonies, December 15. The assembly hall has been named for the late Dr. Abner Calhoun, and the library for the late Dr. John Westmorland, who founded the Atlanta Medical College in 1853. The library was dedicated by Lucian Lamar Knight, state historian. At the first meeting held in the new academy, Dr. J. Shelton Horsley, Richmond, Va., spoke on "The Relation of Biology to Surgery." Dr. Rufus T. Dorsey presided.

IDAHO

Physician Elected a Senator.—Dr. Walter F. Pike, Twin Falls, was recently elected to the state senate.

ILLINOIS

Board of Health Elects.—At the annual meeting of the state board of public health at Springfield, December 2, Dr. Edwin P. Sloan, Bloomington, president of the Illinois State

9. Pusey, W. A.: Discussion, Arch. Dermat. & Syph. **6**: 672 (Dec.) 1922.

Medical Society, was elected chairman of the advisory board of the health department, to succeed Dr. William A. Evans of Chicago. Mrs. Monroe of Quincy was elected vice chairman, and Dr. Thomas D. Doan, Scottville, secretary of the Marcoupin County Medical Society, was elected secretary.

Quits to Avoid Vaccination.—Rather than submit to the order of the state board of health that every one in Sterling be vaccinated, John Haglock, chief of police of that city for the last ten years, has resigned his position.

Personal.—Dr. H. Horace Long, Orion, is retiring from the practice of medicine.——Dr. James G. Baker, Mattoon, has been appointed local surgeon for the Illinois Central Railroad to succeed Dr. J. T. McDonald, recently deceased. ——Dr. Emil Windmueller, Woodstock, is in the hospital suffering from severe burns, as the result of coming in contact with live wires on his roentgen-ray machine. He was found prostrate on the floor of his office.

Chicago

Prison for Venereal Disease Carriers.—It is announced by Dr. Bundesen, city health commissioner, that at its next session the Legislature will be asked to make the transmission of venereal disease a penitentiary offense. Senator-Elect Mason will introduce the bill. It was also suggested that the guilty party or parties responsible for babies being born dead as the result of venereal infection be charged with second degree murder.

Fenger Memorial Association.—It is announced that the directors of the Fenger Memorial Fund have set aside $500 for medical investigation. The research work should have a clinical bearing, and if possible it should be carried out in an institution that will furnish facilities and ordinary supplies free of cost. Applications with full particulars should be sent to Dr. Ludvig Hektoen, 637 Wood Street, Chicago, before Jan. 15, 1923.

Personal.—Dr. Michael Nelson, Chicago, sailed on the *Helig Olav* for Christiania and Copenhagen, November 30. ——Dr. Carl O. Young, Chicago, sailed December 2, on the White Star liner *Arabic* for Mediterranean ports.——Dr. B. Barker Beeson, Chicago, has been elected a corresponding member of the Société Anatomique de Paris.——Dr. Daniel N. Eisendrath read a paper before the Academy of Muncie, Ind., December 15, on "Diagnosis and Treatment of Renal Calculi."

Children's Clinic Opened.—Dean Arthur D. Black of the Northwestern University Dental School, President Walter Dill Scott and Health Commissioner Herman Bundesen were the speakers at the formal opening of the new children's dental clinic of Northwestern University, December 13. The clinic has been established at a cost of $60,000, and a deficit of about $9,000 has been guaranteed by a Chicagoan who desires to remain anonymous. The operating room contains fifteen dental chairs, and there is a large playroom for the children awaiting examination and treatment.

Society News.—At the annual meeting of the Institute of Medicine of Chicago, December 11, the following officers were elected for the ensuing year: president, Dr. William T. Belfield; vice president, Dr. George H. Weaver; secretary, Dr. Ernest E. Irons, and treasurer, Dr. Joseph A. Capps. Dr. Ludvig Hektoen was elected chairman of the board of governors. —— The Robert Koch Society for the Study of Tuberculosis had for its guest, at the December 12 meeting, Dr. Edward Archibald of Montreal, Canada, who gave an address on "Personal Experience with the Operation of Extrapleural Thoracoplasty."

University of Chicago Hospital.—Plans for the Albert Merritt Billings Memorial Hospital for the University of Chicago have been completed. The building, which will occupy a city block, is expected to be one of the most modern institutions in the country. The buildings will be of domestic Gothic architecture in gray Bedford stone. Collidge and Hodgdon, Chicago, who drew up the plans for the Harvard Medical School buildings and several of the University of Chicago campus buildings, are the architects. The hospital has a fund of $1,100,000 for construction purposes. Dr. Frank Billings of Chicago has donated a medical library, and Mr. and Mrs. Epstein have given $100,000 for the erection of a dispensary.

Chicago Safety Campaign.—A pamphlet has been issued by the council, stating how it plans to save life and property in Chicago during the next three years. A vigilance committee of 500 will be organized; ten district safety councils will be formed in as many sections of the city; safety will be taught in the schools; instruction courses will be given for firemen; a safe drivers' club will be organized; an annual safety week will be conducted; three schools will be conducted for safety supervisors; individual service will be provided industries; 150 safety bulletin boards will be installed and maintained; intensive activities in fire prevention will be promoted; monthly meetings will be arranged for industrial executives; two motor schools for chauffeurs and truck drivers will be operated; campaigns to reduce juvenile deaths and injuries will be organized; a school in fire prevention will be conducted, and public sentiment opposed to needless accidents and fires will be developed. It is estimated that six people are killed each day in Chicago.

LOUISIANA

Physicians Donate Library.—The entire library of the Shreveport Medical Society has been donated to the public library in that city. At the recent annual meeting of the society, Dr. Lewis H. Pirkle was elected president and Dr. R. T. Lucas, secretary, for the ensuing year.

Fund for Tulane University.—Under the will of the late William G. Vincent, a fund of $60,000 for establishing a chair of tropical disease at Tulane University of Louisiana School of Medicine, New Orleans, will eventually be available; also, $30,000 for the erection of an isolation building for the Charity Hospital, New Orleans.

Orleans Medical Society.—At the annual meeting of the Orleans Parish Medical Society in New Orleans, Dr. Hiram W. Kostmayer was elected president; Drs. Randolph Lyons, Mary Elizabeth Bass and Frank J. Chalaron, vice presidents; Dr. Lucien A. LeDoux, secretary, and Dr. John A. Lanford treasurer. The society celebrated the one hundredth anniversary of the birth of Pasteur, December 11.

MAINE

County Physicians Elect.—At the annual meeting of the Penobscot County Medical Society at Bangor, Dr. Walter E. Whitney was elected president; Dr. Carl J. Hedin, vice president, and Dr. Harry D. McNeil, secretary-treasurer. The meeting was followed by a banquet, at which the retiring president, Dr. C. H. Burgess, gave an address.

MARYLAND

New Ward Unit at the Johns Hopkins Opened.—The trustees of the Johns Hopkins Hospital have announced the opening of a ward unit for men of moderate means in the urologic department. A generous gift has made it possible to maintain in part, for a term of years, a ward unit for those who require hospital treatment but cannot afford expensive private rooms and professional fees, and who do not wish to enter the public wards.

Public Health Association Formed.—At a meeting of citizens of Baltimore County in Osler Hall, Medical and Chirurgical Faculty Building, Baltimore, recently, a public health association for the county was organized. A constitution and by-laws were adopted and fifteen district directors and six directors-at-large were selected. The new association will continue the work done heretofore by the Baltimore chapter of the Red Cross.

Personal.—Dr. Helen MacMurdy, chief of the division of child welfare of the ministry of health, Ottawa, Canada, addressed the members of the Domestic Efficiency Association at its annual meeting in Baltimore, December 11.——Dr. W. D. Bigelow, director of the Research Laboratories, National Canners Association, delivered a lecture on "The Hygienic Aspects of Canned Foods," at the School of Hygiene and Public Health, Johns Hopkins Hospital, December 18. The lecture is one of the series under the DeLamar course of lectures.

MASSACHUSETTS

Physicians Prescribe Coal.—Prescriptions for coal are being given by physicians and honored by coal dealers in Lawrence. One dealer stated that he had received more than a dozen prescriptions, written on regular prescription blanks, each calling for half a ton of coal. Such orders are given preference over all others, it is announced.

Health Exhibition.—During the week of Oct. 6-11, 1923, a health exposition will be held in the Mechanics Building, Boston, under the auspices of the state and city public health departments and the health exhibit committee of Boston. Felix Mendelsohn, president of the National Health Shows, Inc., will assume the business management and financial responsibility. Dr. Francis X. Mahoney, health commissioner

of Boston, is chairman of the committee, consisting of Dr. Eugene R. Kelley, state health commissioner; Miss Beard, director of the Instructive District Nursing Association; Henry Greene, secretary of the health service, Boston Metropolitan Chapter of the American Red Cross, and Dr. Lily O. Burbank, vice chairman of the Boston health exhibit committee. The exposition will be the most important of its kind ever undertaken in Boston, Dr. Mahoney states. The proceeds will be used for furthering public health.

MICHIGAN

Radio Adopted by Health Department.—Health promotion by radio is the latest innovation adopted by the state department of health. A series of short talks of a nonprofessional nature regarding health conditions in the state will be broadcasted every Thursday evening from Lansing.

Beaumont Lectures.—The first of the William Beaumont Foundation lectures, given under the auspices of the Wayne County Medical Society, Detroit, has just been issued in book form. Dr. W. G. MacCallum, professor of pathology, Johns Hopkins University, delivered the first lecture last January. This series of lectures is the outgrowth of a patriotic fund created during the war for the purpose of assisting needy families of members of the medical society who were in war service. After the fund had served its purpose, the contributors redonated the substantial surplus to the progress of scientific medicine.

MISSISSIPPI

Five-Year Malaria Survey.—Dr. H. H. Howard of the International Health Board has arrived in Laurel, to conduct the five-year campaign in Jones County against malaria. Work will be started, Jan. 1, 1923. Dr. Howard will have the assistance of three workers, as well as medical students who wish to study malaria.

MISSOURI

Hospital News.—The cornerstone of the new St. Mary's Hospital, St. Louis, to be erected on the corner of Clayton Road and De Mun Avenue, was laid, November 21.——Miss Flowers, St. Louis, has been appointed superintendent of the Gallaway County Hospital, Fulton, to succeed Mrs. Wilcox, resigned.——Miss Ranz will succeed Miss Reitz as superintendent of the Audrain Hospital, Mexico.——The contract has been let for the erection of a fifty bed hospital at Sarcoxie, at a cost of $112,694. The Simon Construction Company will erect the institution, which will be completed by Aug. 1, 1923.

NEBRASKA

Fire Destroys Hospital.—The hospital building owned by Dr. Samuel A. Van Osdel, Johnson, was destroyed by fire, recently. Dr. Van Osdel plans to rebuild shortly.

Public Health News.—Nebraska has the lowest pneumonia mortality rate of all states in the Union, reports announce, the rate being 143.1 per hundred thousand during 1920, as against 287.1 for Colorado, the highest. Nebraska also leads all other states in having the lowest mortality rate for all forms of tuberculosis, the rate being 36.7 per hundred thousand.

NEW JERSEY

Personal.—Dr. Berthold S. Pollack, medical director of the Hudson County Tuberculosis Hospital, Secaucus, was recently elected president of the New Jersey Tuberculosis League.——Dr. C. Coulter Charlton, Atlantic City, has gone to Europe to study for several months.——Dr. Clarence L. Andrews and Dr. Edward F. Uzzell were elected president and secretary, respectively, of the Atlantic County Medical Society at the annual meeting in Atlantic City, November 10.——Dr. Edward S. Dillon, Woodbury, has been elected president of the Gloucester County Medical Society.

State Medical Society Plans New Legislation.—A meeting of the welfare committee of the Medical Society of New Jersey was held, December 6, at Newark, with Dr. Wells P. Eagleton, Newark, in the chair. The program for the meeting called for consideration of a bill appropriating $10,000 for the state board of medical examiners, in order that they may prosecute violators of the medical practice act; a bill pertaining to nurses, and a bill to transfer from the jurisdiction of the state medical board to the state board of health, the regulation of midwives. A report was also made on the workings of the medical amendment to the Workmen's Compensation Act, passed last winter.

Hospital News.—The State Fireman's Home, Boonton, has applied to the state authorities for permission to construct a hospital at the home. Dr. W. J. Summers was elected president of the Boonton Hospital Association, formed for this purpose.——Dr. Harry B. Slocum has been elected chief of staff of the Monmouth Memorial Hospital, to succeed the late Dr. Edwin Field.——A general hospital will be established at Phillipsburg, instead of a maternity hospital and infantorium as originally planned. The trustees so decided on a petition from the citizens of Phillipsburg.——Congressman E. R. Ackerman has offered the sum of $20,000 payable $10,000 in December, 1922, and $10,000 in 1923, provided that $115,393 is subscribed in full by the general public for other items in the budget of the Muhlenberg Hospital, Plainfield. A campaign is being conducted to raise money for the enlargement of the institution.

NEW MEXICO

County Medical Meeting.—At the annual meeting of the Bernalillo County Medical Society in Albuquerque, December 6, the following officers were elected: president, Dr. Carl Mulky; vice presidents, Drs. David C. Dodds and John A. Reidy; secretary, Dr. Leo B. Cohenour, and corresponding secretary, Dr. Emmett E. Royer. A committee was appointed to set the date and make arrangements for the entertainment of the state medical society in June 1923.

NEW YORK

Syracuse Teachers to Receive Schick Test.—November 21, 150 teachers in the public schools were given the Schick test and 60 per cent. showed a positive reaction. Dr. Joseph C. Palmer, director of medical work in the schools, started a campaign for the testing of schoolchildren, December 9.

Seek Funds for Rehabilitation of the Disabled.—Plans have been completed for a drive soon to be started, to raise $130,000 for the Institute for Crippled and Disabled Men. It is estimated that it will require this amount to carry on the work of the institute for two years and to pay $30,000 to purchase its new quarters at 245 East Twenty-Third Street. Dr. John Culbert Faries is director of the institute.

Open War on Abortion Ring.—Health officials and police of Rochester engineered a successful raid at 470 Lyell Avenue, November 25, arresting Dr. J. Sherburne Read, 429 South Goodman Street; George Guinan, 8 Platt Street, said to be a medical student, and Mrs. Cecilia Weis, 470 Lyell Avenue. All were charged with abortion. Bail was fixed at $10,000 in each case. The police assert that they have the auto license numbers of at least a dozen physicians who frequented the Weis house.

Hospital Donations.—At a meeting of the directors of the Hospital for Joint Diseases, December 10, it was announced that the Equitable Trust Company would act as custodian of the endowment fund of securities of more than $100,000, yielding $5,800, given by Dr. Henry W. Frauenthal, founder and surgeon-in-chief of the hospital. The income derived from this fund will go toward the maintenance of the laboratory of the new hospital.——The Mount Sinai Hospital has received a gift of $25,000 from Mr. Joseph F. Cullman, as the nucleus of a fund for medical education.

Columbia University Celebrates Pasteur Centennial.—The College of Physicians and Surgeons, the Department of Romance Languages, and the Faculty of Pure Science, in cooperation with the University Extension of the Institute of Arts and Sciences, held a meeting, December 18, to commemorate the centenary of Louis Pasteur. The speakers were Emmanuel de Margerie of the University of Strasbourg, whose subject was "France's Estimate of Pasteur"; Dr. Gary N. Calkins, who spoke on the "Debt of Biology to Pasteur," and Dr. Frederic S. Lee, whose subject was "The Debt of Medicine to Pasteur."

New Requirements for Public Health Nurses.—At a meeting of the public health council of the state department of health recently, a resolution was adopted requiring that, after Jan. 1, 1924, public health nurses appointed by county and municipal authorities shall possess the following qualifications:

(1) They shall not be less than 21 years of age at the time of appointment. (2) They shall be registered nurses. (3) They shall have completed a course in public health nursing approved by the public health council. Similar qualifications were required of public health nurses some years ago, but, owing to the great shortage of nurses during the World War, it was necessary to relax the rules. Graduates of the correspondence course in public health nursing now being conducted at the request of the department of health at New York University and Bellevue Hospital Medical Colleges will be eligible under these new educational requirements.

Personal.—Dr. F. A. Treiber, Brooklyn, sailed for Bermuda, December 2.——Dr. Ward I. Pierce, New York, sailed for Havre, November 23.——Dr. Earl Connell, major, M. C., U. S. Army, New York, was awarded the distinguished service medal by President Harding, recently.——Among those who sailed for Europe on the White Star liner *Majestic*, December 14, were Dr. Boris D. Bogen, head of the Joint Distribution Committee for Russia and Poland; Dr. L. G. Kligler of the Rockefeller Institute, head of the Palestine Malarial Research Unit, and Dr. Otto Shulhof.——Dr. A. Progebin of Brooklyn sailed for Europe on the *Mongolia* of the Hamburg line, December 11.——Dr. Victor Hess and Dr. F. B. Jennings have recently returned from Europe.——Lieut.-Col. Levy M. Hathaway, who served as surgeon with the Thirty-Third Division, has been awarded the distinguished service medal.

New York City

A Warning.—Dr. Mihran B. Parounagian, New York, reports that two physicians called at his office recently, introducing themselves as physicians from Indianapolis and St. Louis. They seemed well informed on medical matters and succeeded in securing an advance of $40 on a memorandum. Having heard nothing from them, he investigated, and letters from the physicians addressed, whom the impostors were impersonating, revealed that a similar scheme had been attempted in connection with other physicians.

Standards for Outpatient Clinics.—The Association of Out-Patient Clinics of New York has published a list of practical standards for outpatient clinics in the hope of receiving the comments and criticisms of the profession. The standards relate to the scope of responsibility of the outpatient clinic; community relations; general organization; relation to the hospital; medical organization; facilities, equipment and procedure; admissions; appointment system; limitation of numbers; fees; social service; follow up; accounting; districting; adaptation of clinics to clientele, and appraisals of results.

OHIO

Dr. Sampliner Exonerated.—The case against Dr. William E. Sampliner, Cleveland, charged with using the mails to defraud, in connection with the presenting of bills to the Ohio Industrial Commission, was recently dismissed by U. S. Commissioner Zinner, and Dr. Sampliner was completely exonerated.

Summit County Medical Society.—At the eighty-first annual meeting of the society held in Akron, December 5, the following officers were elected: president, Dr. Corwin Thomas Hill; president-elect, Dr. Edwin Shoemaker Underwood, and secretary-treasurer, Dr. Alexander Stearns McCormick (elected for the ninth term).

Course in Treatment of Gonorrhea and Syphilis.—The Mount Sinai Hospital of Cleveland offers a three months' practical course in diagnosis and treatment of gonorrhea and syphilis, free to the medical profession. The course starts January, March, September and November, and is limited to four graduates in medicine. Clinics will be held every Thursday by Dr. P. A. Jacobs, chief of the night clinic, and associates. Address all communications to F. E. Chapman, director.

Personal.—Prof. R. G. Hoskins, head of the department of physiology, Ohio State University, Columbus, will give the annual address before the Portland (Ore.) Academy of Medicine, January 11-12.——At the annual election of the Academy of Medicine of Cleveland, December 15, Dr. Clyde L. Cummer succeeded Dr. John Phillips as president.——Dr. C. I. Anders, Old Fort, was recently elected president of the Seneca County Medical Society.——Dr. Erl A. Baber, Dayton, has been appointed superintendent of the Longview Hospital for the Insane, Cincinnati, to succeed Dr. Emerson A. North, who resigned to become director of the Cincinnati Mental Hygiene Clinic, recently organized.——Drs. Russell J. Caton and Charles Ulmer, Bucyrus, have resigned as members of the city board of health.——Dr. Thomas A. Ratliff has been appointed head of the department of public welfare and a member of the state committee of five to investigate the situation in Ohio with reference to the needs for the care of the feebleminded.——C. A. Mills, Ph.D., has resigned as instructor of biochemistry in the College of Medicine of the University of Cincinnati.——A. E. Hardgrove has been appointed superintendent of the City Hospital of Akron.

OKLAHOMA

Personal.—Dr. William P. Lipscomb, Oklahoma City, has given up the practice of medicine and will reside in Denver.——Dr. John C. Mahr has been appointed superintendent of the Central Oklahoma State Hospital for the Insane, Norman, to succeed Dr. David W. Griffin.——Dr. Robert H. Harper, Afton, was recently elected president of the Ottawa County Medical Society to succeed Dr. Dell L. Connell, Picher.——Dr. Ralph V. Smith, president of the Oklahoma State Medical Association addressed the members of the Creek County Medical Association at their annual meeting in Sapulpa, December 7. Dr. Walter G. Bisbee and Dr. Ernest W. Reynolds, both of Bristow, were elected president and secretary-treasurer, respectively.

PENNSYLVANIA

Personal.—Dr. John A. Hawkins, Pittsburgh, president of the Western Pennsylvania Reserve Officers' Association, has been promoted to the rank of colonel in the M. O. R. C.——Dr. J. Lewis Mansuy, Ralston, has been elected president of the Lycoming County Medical Society.——Dr. John A. Weierbach, Quakertown, was recently elected president of the Bucks County Medical Society.——Dr. William M. Lynch was unanimously reelected superintendent of the Fairview Hospital for the Criminal Insane at Scranton, for a period of four years, at the recent annual meeting of the board of trustees.

Philadelphia

Smallpox Quarantine.—More than 1,000 residents of the vicinity of Thirty-Third and Walnut streets were placed under police quarantine, December 14, after the discovery of three cases of smallpox at 3235 James Street.

Children Give Play.—Two health playlets and a lecture on nutrition illustrated with lantern slides were given in the auditorium of Sutro and Sutro Company, December 15, under the auspices of the welfare department of the Northeastern Hospital. Public school children of Kensington composed the casts of the playlets. Costumes and settings were supplied by the Philadelphia Interstate Dairy Council.

Hospital News.—An appropriation of $250,000 has been made for the establishment of a hospital in Philadelphia by the Ancient Arabic Order of the Mystic Shrine. Construction work will be started in the near future.——A temporary women's committee of the Columbus Hospital, a new Italian institution for which a building is to be erected at Broad and Wharton streets, has been organized by Dr. John Gilbride to raise building funds. The hospital will be under the auspices of the Missionary Sisters of the Sacred Heart.

White Surgical Pavilion Dedicated.—Sir Auckland Geddes, the British Ambassador, delivered the dedicatory address, December 14, at the opening of the new J. William White Surgical Pavilion of the University of Pennsylvania. The new pavilion has been several years under construction. It is a seven-story fireproof structure and was erected at a cost of $1,000,000, of which $350,000 was contributed by the state and the remainder by friends of the university. It was named in honor of Dr. J. William White, for many years professor of surgery at the university. The opening of this surgical pavilion increases the number of beds for patients in the University Hospital from 456 to 546.

Pasteur Celebration.—The centenary of Pasteur will be celebrated in Philadelphia, December 27. A committee, with Dr. W. Duffield Robinson as chairman and Dr. McCluney Radcliffe, secretary, is in charge of the arrangements. An afternoon mass meeting will be held in the Academy of Music, with a banquet at the Bellevue-Stratford in the evening. Dr. Hugh S. Cumming, Surgeon-General, U. S. Public Health Service; N. Jules Jusserand, the French ambassador; Dr. Robert Abbe, New York; M. Brunet, special delegate of the French government, director of the Pasteur Institute, Tunis, and Dr. Lewis S. McMurtry, professor of abdominal surgery and gynecology at the University of Louisville, Louisville, Ky., will be among the speakers.

TENNESSEE

Bristol to Have Two Hospitals.—Two new hospitals, representing an outlay of $170,000 will be opened in Bristol early in the new year, it is announced. The King's Mountain Memorial Hospital, is being erected at a cost of $150,000 and the Mercy Hospital for Negroes is practically completed. This institution cost about $20,000 and is the only negro hospital in that section.

TEXAS

Course for Water and Filter Plant Operators.—Under the auspices of the state department of health, in conjunction with the Texas Water Works Association, the fifth course for water and filter plant operators will be given in Dallas, during the week beginning Jan. 15, 1923. The course is free, and anyone interested may attend. Application should be made to Dr. W. T. Davidson, director of public health, Dallas.

Society News.—At the annual meeting of the Tri-State Medical Association (Arkansas, Louisiana and Texas) at Marshall, December 5-6, the following officers were elected for the ensuing year: president, Dr. Oliver M. Heartsill, Marshall; vice president, Dr. Donald Smith, Hope, Ark., and secretary-treasurer, Dr. J. W. E. Burk, DeKalb, Texas. Texarkana, Texas, was chosen for the next meeting place.——The Northwest Texas Medical Society was reorganized, December 7, during the meeting of the tri-state society, with Dr. Robert T. Mann, Texarkana, as president; Drs. William G. Hartt, Marshall, and Alvin Dinwiddie, Clarksville, vice presidents, and Dr. William Hibbitts, Texarkana, secretary-treasurer. This society covers fifteen counties and was dissolved several years ago.——At the annual meeting of the State Pathological Society of Texas in Waco, recently, the following officers were elected: president, Dr. James H. Black, Dallas; vice president, Dr. Beecher F. Stout, San Antonio, and secretary-treasurer, Dr. Wilbur F. Thomson, Beaumont.——At the annual meeting of the Eastland County Medical Society at Ranger, in November, Dr. William H. Guy, Carbon, was elected president to succeed Dr. Thomas L. Lauderdale, Ranger.——At the annual meeting of the Tom Green County Medical Society at San Angelo, Dr. A. W. Clayton was elected president and Dr. Hubbard K. Hinde, secretary-treasurer.

UTAH

Physicians Elect.—At the annual meeting of the Cache Valley Medical Society, in Logan, December 6, Dr. Warren O. Christensen, Wellsville, was elected president; Dr. Joseph W. Hayward, Logan, vice president, and Dr. William Bowker Preston, Logan, secretary-treasurer.

VERMONT

Push Work on Burlington Hospital.—Work is being vigorously pushed on the construction of the Bishop Goesbriand Hospital at Burlington. When completed, this institution will be one of the largest hospitals in Vermont. The unit under construction is 220 by 58 feet and will constitute one-fourth of the entire hospital.

WASHINGTON

Physicians Elected to Legislature.—At the November election the following physicians were elected to the state house of representatives: Dr. Albert F. Brockman, Bickleton; Dr. Victor J. Capron, Friday Harbor, and Dr. Hubert A. Mount, Waitsburg.

Northern Pacific Surgical Association.—At the annual meeting of the association, held in Tacoma, December 8, under the presidency of Dr. John B. McNerthney, the following officers were elected for the ensuing year: president, Dr. James B. Eagleson, Seattle; vice presidents, Drs. Herman M. Robertson, Victoria, B. C., Canada, and Henry B. Luhn, Spokane, and secretary-treasurer, Dr. Alvin W. Baird, Portland, Ore. (reelected). The 1923 convention will be held in Seattle.

Indian Hospital to Be Erected.—Fifteen buildings at Miles barracks and quarters at old Fort Spokane are being wrecked, the lumber to be used in the construction of a hospital for Indians on the old fort grounds, which have been turned over by the war department for this purpose. Congress will be asked to appropriate $100,000 for construction work on the hospital, reconstruction of the water system and erecting quarters for the employees. This hospital is designed to serve Indians throughout the Northwest.

WISCONSIN

Epidemic of Measles.—The number of cases of measles reported from Milwaukee to December 9 was 1,067, sixty new cases being reported that week.

Milwaukee Physicians Elect.—At the annual meeting of the Milwaukee County Medical Society in Milwaukee, December 7, Dr. Frederick A. Stratton was elected president to succeed Dr. Patrick H. McGovern. Dr. Maurice L. Henderson was elected vice president, and Dr. Daniel Hopkinson, secretary.

PHILIPPINE ISLANDS

Beriberi Investigation Committee Appointed.—The Beriberi Investigation Committee, composed of the U. S. Army Medical Department Research Board and members of the faculty of the College of Medicine and Surgery, University of the Philippines, was recently organized at the Philippine General Hospital, Manila. Dr. Jose Albert, chief of clinics, is chairman of the committee. The other members are Drs. Callender, Garrison, Fleming and Bitterman of the U. S. Army board, and Drs. Bautista, Roxas, Guerrero, Smith, Sison, Fernandez, Concepción, Domingo and Albert of the University of the Philippines.

CANADA

Claims for Cancer Cures.—Following the offer of Lord Atholstan of the Montreal *Star* of a prize of $100,000 for the discovery of a cure for cancer, 2,715 claims for the award have already been received from forty-one countries. On advice of the Royal College of Physicians and Surgeons of London, England, claimants must satisfy a recognized medical faculty or leading medical society in his or her own country first, that there is some scientific basis to justify the experimental investigation of the professed cure, and that any cases said to be successfully treated were, in fact, cases of cancer.

Protecting the Physician.—At a special meeting of the Ontario Medical Association, ways and means of protecting the medical profession from those who would include themselves under the title of doctor without having the proper qualifications was the subject of discussion. Dr. J. F. Argue, Ottawa, was in the chair. A resolution was unanimously passed whereby the medical council was given power to take such action as they deemed fit toward securing legislation that shall define the professional standing requisite to the practice of medicine. A further resolution pledging the support of the association to a joint advisory committee in framing the bill to be placed before the legislature at the next session was introduced by Dr. Edmund E. King, Toronto.

Catholic Hospital Convention.—A joint meeting of the Western Canada, the Manitoba, and Western Canada Catholic Hospital associations was held in Winnipeg, November 13-15, under the presidency of Dr. George H. Stephens, superintendent of the Winnipeg General Hospital, and president of the Western Canada Hospital Association. It was stated that the average per capita cost in Western Canada for hospital service ranged from $3.25 to $3.50 per day. Dr. M. T. MacEachern, Ottawa, president-elect of the American Hospital Association, represented British Columbia at the meeting. He discussed affiliation of the Western Canada Hospital Association with the American Hospital Association. Dr. Barager, superintendent of the Brandon Mental Hospital was elected president of the Manitoba Hospital Association. There were no changes in the Western Canada Hospital Association officers. It is expected that the association will continue.

GENERAL

Radiological Society of North America.—At the annual meeting of the society, in Detroit, December 6, Dr. Percy Brown, Madison, Wis., formerly of Boston, was awarded the gold medal of the society for "distinguished services in the science of radiology." The medal of the society was also awarded to Madame Curie, Prof. Gösta Forssell of Stockholm and Maud Slye of Chicago.

Gen. Leonard Wood Resigns as Provost of the University of Pennsylvania.—Major-Gen. Leonard Wood has resigned the office of provost of the University of Pennsylvania in order to remain as governor-general of the Philippines. The resignation represents a considerable sacrifice on the part of General Wood, whom the medical profession is proud to claim as a physician, since it is known that the salary at the University of Pennsylvania was much greater than that connected with the position in the Philippines, not to mention other advantages in the form of personal comfort, permanence and other features of university life.

National Dairy Association.—At the annual meeting held in Chicago, December 8, Prof. H. E. Van Norman was elected president of the association for the eleventh successive time. He was also reelected a director of the National Dairy

Council, which has been engaged for several years in conducting educational campaigns in behalf of milk drinking. Both organizations have their headquarters in Chicago. Mr. Van Norman is also president of the World's Dairy Congress Association, Washington, D. C., which will hold an international dairy meeting in the United States in October, 1923, to which President Harding has invited 150 nations, colonies and commonwealths to send official representatives.

American Social Hygiene Association.—At the annual meeting of the association held in New York, November 3, under the presidency of Dr. Hermann M. Biggs, the following officers were elected for the ensuing year: president, Dr. Hermann M. Biggs, New York City; vice presidents, Drs. Ray Lyman Wilbur, San Francisco; Dr. William S. Keller, Cincinnati; Dr. William A. Evans, Chicago, and Mrs. Joseph T. Bowen, and secretary, Dr. Donald R. Hooker, Roland Park, Md. It was announced that the *Journal of Social Hygiene* will appear, January, 1923, as a monthly, the new publication taking the place of the *Social Hygiene Bulletin*. Prof. Maurice A. Bigelow is editor-in-chief of the new journal.

Dr. Victor C. Vaughan Delivers Pasteur Addresses.—On December 6, Dr. Victor C. Vaughan of the editorial board of *Hygeia*, gave a public address at Madison, Wis., under the auspices of the University of Wisconsin chapter of Sigma Xi, in commemoration of the hundredth anniversary of the birth of Louis Pasteur.——On December 14, he took part in a program commemorating the centenaries of Pasteur and Mendel, arranged as a formal convocation by St. Louis University. President Robinson of the university presided and addresses were delivered by President Jones of Missouri University, Chancellor Hall of Washington University, Prof. Herbert S. Jennings of Johns Hopkins University and Dr. Vaughan.

Experimental Biologists Convene.—The Federation of American Societies for Experimental Biology, consisting of the Physiological Society, the Society of Biological Chemists, the Society for Pharmacology and Experimental Therapeutics and the Society for Experimental Pathology, will hold its annual session in Toronto, Canada, December 27-29, with headquarters at the University of Toronto. On the opening day there will be a joint session of the four societies, followed by special sessions of the various organizations, and the annual dinner and celebration of the one hundredth anniversary of the birth of Pasteur. The closing session will be devoted entirely to papers on the use of the new pancreatic hormone in diabetes.

American Association for the Advancement of Science.—Section N (medical sciences) of the association will hold a meeting in the Massachusetts Institute of Technology, Boston, December 29. Prof. A. B. Macallum, McGill University of Montreal, will lecture on "The Necessity for Advanced Research on the Intestinal Mucosa, the Great Gateway of Disease of the Body." It has been decided, beginning with the Boston meeting, to hold a symposium to which will be invited representatives from the fields of medicine, parasitology and medical entomology. Each representative will discuss his researches with the workers in these allied fields. The Entomological Society of America and the Parasitological Society will meet with the section in Boston.

The Legal Profession and the National Government.—The American government has been and essentially is a government by lawyers. Of the twenty-eight presidents, twenty-three have been lawyers; of the forty-six secretaries of state, forty-four have been lawyers; all of the attorneys general; all of the judges of the federal courts; of the fifty-six signers of the Declaration of Independence, twenty-five were lawyers; and of the fifty-five farmers of the federal constitution, thirty-one were lawyers. In the present Congress, over two third of the senators are lawyers (sixty-nine out of ninety-six) and over half of the representatives (276 out of 435). In 1920, there were but 122,519 lawyers, judges and justices in this country of over one hundred and five millions of people. Never before in the history of the world has so great and intelligent a nation been governed by so small a body of men.—W. W. Cook of the New York Bar in *American Bar Association Journal*.

Death Rates of Mothers from Childbirth in 1921.—The Department of Commerce announces that the compilations made by the Bureau of the Census show lower death rates of mothers from childbirth or puerperal causes in 1921 than in any year since 1917. For the nine states and the District of Columbia (constituting the "Birth Registration Area" of 1915, exclusive of Rhode Island), the death rate from puerperal causes in 1921 was 6.5 to 1,000 live births as compared with 7.6 in 1920, 6.8 in 1919, 8.9 in 1918, 6.3 in 1917, 6.2 in 1916, and 6.1 in 1915. The ratio of deaths from childbirth to the number of women bearing children in the year 1921 was about 1 to 150. Of the twenty-seven states for which figures are available, South Carolina has the highest 1921 death rate from puerperal causes (9.8 to 1,000 live births) and Connecticut the lowest (5.3). Rates for the white and colored races are shown only for Kentucky, Maryland, Mississippi, North Carolina, South Carolina and Virginia. For 1921 the highest rate for the white (7.8) appears for South Carolina, the lowest (5.7 each) for Kentucky and Virginia, while for the colored the highest rate (14.8) appears for Kentucky; the lowest (9.6) for Maryland.

International Conference on Standardization of Serums.—Dr. Augustus B. Wadsworth, director of the division of laboratories of the state department of health, arrived in Albany, N. Y., from Paris, December 13, where he represented the Rockefeller Institute on the international committee appointed by the League of Nations to standardize serums for the treatment and prevention of pneumonia, meningitis, diphtheria and other diseases. The second International Conference on the Standardization of Serums and Serological Tests of the health committee was held under the auspices of the League of Nations, November 20-26, at the Pasteur Institute, Paris, under the presidency of Prof. Theodore Madsen, president of the health section of the League of Nations. Prof. Jules Bordet, Brussels, was appointed chairman of the subcommittee on serologic tests; Prof. Louis Martin, Paris, of the subcommittee on the standardization of tetanus and diphtheria antitoxin; Prof. Cantacuzene, Bucharest, of the subcommittee on antidysentery serum; Prof. Neufeld, director of the Robert Koch Institute, Berlin, of the subcommittee on antipneumococcus serum, and Dr. Wadsworth of the subcommittee on the standardization of antimeningococcus serum. Dr. Wadsworth stated that progress toward international standardization of serums and serologic tests is necessarily a slow one because of differences in the methods that are used in the several countries, but that, despite the many different points of view, the practical results from free discussion were most encouraging.

LATIN AMERICA

Government Board of Health for Mexico City.—In an effort to place health matters on a more efficient basis, the president has appointed a special board of health for Mexico City, directly responsible to him and independent of the city authorities. The board is headed by Dr. F. de Zárraga, a prominent obstetrician.

Medical Conditions in Peru.—Dr. C. E. Roe, assistant editor of *Medicina Ibera*, who has been visiting his native country, Peru, after an absence of several years, draws a pessimistic sketch of medical conditions. The medical school lacks the necessary facilities. Hospital practice is tinged with commercialism. Quackery is in the saddle and even physicians do not hesitate to advertise in a quacklike form. The only ray of hope is the organization of a medical society as recently mentioned in THE JOURNAL.

Personal.—Dr. Elia Martínez Azuara of Túxpam, Mexico, has left for Europe to visit English, French and German clinics.——The Buenos Aires faculty of medicine has granted leave of absence for a trip to medical centers in other countries to Professors Demaría, Iraeta and F. C. Arrillaga. Prof. A. Roffo has also been temporarily relieved of the necessity for lecturing to give him more time for his work as director and in research at the Cancer Institute.——The French government has decorated Dr. P. P. de Carvalho of Rio de Janeiro with the insignia of the Legion of Honor in token of gratitude for the services he rendered during the four years of the war as intern and surgeon at the Hôpital St. Louis at Paris.——The *Brazil-Medico* gives the long list of those who joined in tendering a banquet to Dr. Aloysio de Castro, professor of pathology in the University of Rio de Janeiro, on his recent return from serving on the commission for promoting international relations between institutions of learning, organized by the League of Nations. He was the official representative of Latin America on the commission.

FOREIGN

Street Accidents in London.—The metropolitan police force report 15,419 street accidents in London during the months

of July, August and September. Of these, 174 were caused by mechanically propelled vehicles, and 198 of the accidents were fatal.

Lord Lister Fund Completed.—The international fund in honor of Lord Lister has been closed, the amount received being sufficient to provide a prize of £2,800 (about $13,000), to be awarded triennially for the most important advancement made in surgery, irrespective of nationality. This prize will be awarded on the anniversary of Lord Lister's birthday.

Cancer Institute for Madrid.—An institute for cancer has been inaugurated at Madrid, under the patronage of the queen of Spain. It will contain beds, a consulting room, an operating theater, a radiology department, a laboratory and a mortuary, and will be under the direction of Dr. Goyanes.

Donation to Science.—The receipts of the first performance of "Judith," by M. Henri Bernstein, at the Gymnase Théatre, Paris, October 12, were donated to the French Confederation of Scientific Societies. M. Bernstein gave his royalty as author, and Mme. Simone, the leading lady, donated her salary to the same purpose. The audience comprised the social and intellectual leaders of Parisian society.

New School of Pathology.—A sum of £100,000 (approximately $450,000) has been offered by the executors of the late Sir William Dunn, a London banker, to provide a school of pathology at the University of Oxford. It is to be known as the Sir William Dunn School of Pathology, and the gift is conditional on the university's providing a site and making permanent provision for a chair of pathology and a full teaching staff. The trustees have also offered £3,000 for the adaptation of the existing department of pathology for a school of pharmacology.

Honors for the Medical Profession.—Sir George Berry, Edinburgh; Sir John Collie, Glasgow; Major L. G. S. Molloy, Blackpool; Dr. A. Salter, Bermondsey, London; Dr. T. Watts, Withington, and Sir William Whitla, Belfast, are among the members of the medical profession recently elected to the new British Parliament.——The following British physicians have been elected to the mayoralty: Drs. J. J. E. Biggs, Cardiff; E. A. Farr, Andover; C. F. Oldacres, Daventry; J. T. T. Ramsay, Blackburn; E. L. Thomas, Barnstaple; H. Tibbits, Warwick; H. S. Walerk, Louth, and J. W. Cleveland, St. Albans.

Help for War Blinded.—The comité d'aide de l'Union des aveugles de guerre, Paris, is requesting American ophthalmologists, oculists and other practitioners to contribute and to enlist the interest of their friends in behalf of the French Union des aveugles de guerre. The union faces the problem of continuing at 25 rue Ballu, Paris, its center for blinded soldiers, which supplies recreation and a Braille library, buys raw material, makes sales and finds employment and offers lodging and care in urgent cases. Cooperation with the American profession is secured through Dr. de Lapersonne, chief of the eye clinic at the Hotel Dieu, Drs. de Schweinitz, Wilmer, McReynolds, Parker, Jackson and Merrill. Dr. Theodore C. Merrill, the American delegate for the union, will receive contributions. Address: 10 bis rue Herran, Paris, XVIe, France.

Foreign Congresses.—The Australasian Medical Congress will be held, Nov. 12-17, 1923, at the University of Melbourne, under the presidency of G. A. Syme, M.D. It is planned that particular attention shall be given the preventive aspect of medicine, including medical research.——The Federation of Medical and Allied Services held a conference on hospital finance in London, November 30, under the presidency of Lord Islington.——The next congress of the Royal Sanitary Institute will be held at Hull, England, July 30 to Aug. 4, 1923.——The International Society of Surgery will meet in London, July, 1923, under the presidency of Sir William Macewen. The last meeting of the society was held in Paris in 1920.——The eleventh International Physiological Congress will be held in Edinburgh, Scotland, July 23-27, 1923, under the presidency of Sir Edward S. Schafer.——At the annual meeting of the Royal Faculty of Physicians and Surgeons, Glasgow, Scotland, November 6, Dr. W. G. Dun was elected president, and Dr. J. Hogg Macdonald, treasurer.——The fifth congress of the Far Eastern Association of Tropical Medicine will be held at Singapore, Malay States, Sept. 3, 1923, under the presidency of Dr. A. E. Horn, Singapore.

Personal.—Dr. Michael B. Devane has been awarded the Harry Godfrey Massy-Miles prize of the Royal College of Physicians, Ireland. This prize was founded by Mrs. Massy-Miles in memory of her husband, who was killed in France, April, 1918.——Dr. Mabel M. **Manderson**, Peking, China, formerly dean of the North China Medical College for Women, is touring the United States to raise funds for the women's medical colleges of the Orient.——Dr. Bernard F. Hartzhorne, London, was recently acquitted of suspicion of poisoning a patient under whose will he was beneficiary.——Dr. Robert J. Johnstone has been elected president of the Ulster (Ireland) Medical Society, to succeed Dr. R. Hall.——Dr. Armand Melka of Hungary arrived in this country, December 9, on the Cunarder *Berangia*.——Dr. Robert C. Garry, who graduated from the University of Glasgow in October, was awarded the Brunton Memorial Prize as the most distinguished graduate of his year in medicine.——Dr. F. Antill Pockley has resigned as lecturer in ophthalmology at the University of Sydney.——Dr. G. E. Rannie, having reached the age of retirement (60), has resigned as senior honorary physician of the Royal Prince Alfred Hospital, Sydney, Australia.——Dr. R. A. Dart, demonstrator of anatomy and lecturer on histology in the University College, London, has been appointed professor of anatomy in the University of Witwatersrand, Johannesburg, South Africa.——Dr. F. J. F. Barrington has been awarded the William Julius Mickle fellowship by the senate of London University, in recognition of the work carried out by him on the nervous mechanism of micturition.

Deaths in Other Countries

Dr. **R. J. Martyn** of Sligo, Ireland; suddenly in London, in October, aged 70.——Dr. **James Andrews,** who obtained his diploma seventy-two years ago, in London, November 18, aged 92.——Deputy Inspector Gen. **Francis Y. Toms,** England, awarded the Arctic medal when serving as medical officer with Sir John Franklin's Arctic expedition searching party, aged 96.——Major **Christopher Vice,** senior physician of Tunbridge Wells General Hospital, November 14, aged 65.——Dr. **J. M. Rattray,** fellow of the Royal Historical Society; shot and seriously injured by an insane patient several years ago and never fully recovered, which necessitated his retirement from practice; suddenly in London, November 4, aged 65.——Dr. **R. W. Parry,** magistrate of Glamorgan; awarded the medal for distinguished merit of the British Medical Association in 1877 for bravery during a colliery disaster in Wales.——Dr. **P. N. Arata,** professor emeritus of organic chemistry at the University of Buenos Aires, noted for his extensive research in chemistry, member of the national public health council, president of the national education council, rector of the veterinary and agronomics faculty, which was due to his initiative, and founder of an actual Argentine school of chemistry, which has devoted much attention to the native drugs.——Dr. **H. Obersteiner,** professor emeritus of the physiology and pathology of the central nervous system at the University of Vienna, aged 75. His manual for study of the structure of the nervous system, published in 1896, has been translated into several languages and passed through numerous editions, and students flocked to his courses from all lands. His research on concussion of the spinal cord, inheritance of acquired characters, allochiria and the pathology of vessels has been of fundamental importance. He edited twenty-two volumes of the "Works from the University Neurologic Institute." He had founded this institute and endowed it from his private means.——Dr. **Iwan Bloch,** a dermatologist and medical historian at Berlin, one of the founders of the German Society for Sexual Science and its first president, aged 50.——Dr. **C. Canavesio** of Buenos Aires, and Dr. **J. M. Espeche,** a retired high official in the medical service of the Argentine navy, at one time undersecretary of state in the department of the interior.

CORRECTIONS

Dr. McCullagh's Medal.—A letter from Dr. McCullagh, New York, states that he was not the recipient of the distinguished service cross as announced in THE JOURNAL, December 9, but was awarded the distinguished service medal.

Osteologist—Not Osteopathist. — In THE JOURNAL for November 4 appeared a case report with the heading "Intra-Abdominal Hemorrhage from Stomach Due to Osteopathic Treatment." Our attention has been called by several osteopathists to the fact that in the body of the article it is stated that the treatments administered were given by "a person calling himself an osteologist and claiming to be an improvement over the osteopath." The methods of treatment are described so that the reader may determine for himself their nature.

Government Services

Army Survey of Medical Supplies

With a view to more complete national preparedness, the Fourth Corps Area of the U. S. Army, through Col. Ralph S. Porter, M. C., U. S. Army, has been directed by the Surgeon-General to seek cooperation and information from manufacturers and distributors of drug, hospital and sanitary supplies, so that in the event of war these provisions will be available for immediate use.

United States Veterans' Bureau Hospitals

Twelve thousand beds in new, fireproof Veterans' Bureau hospitals will be available by the end of 1923, and 2,000 additional beds will be ready by the end of 1924. Announcement to this effect has been made by Brig.-Gen. Charles E. Sawyer, head of the Federal Board of Hospitalization. President Harding has approved these plans, which are the consummation of the entire federal hospital program for the care of World War veterans. The White committee is to take charge of the construction of a modern 500 bed tuberculosis hospital on land recently purchased at Chelsea, N. Y., which will be turned over to the Veterans' Bureau on completion. The Treasury Department will transfer to the Veterans' Bureau the site at Aspinall, Pa., with the understanding that a hospital will be erected there. With the completion of these two hospitals, the entire federal hospital program for ex-service men will be consummated and will afford, it is claimed, modern, fireproof hospitals so distributed throughout the country as to furnish adequate hospital facilities. With the completion of these two structures, the federal government will have spent a total of $35,000,000 for hospitals for ex-service men.

Appropriation for Public Health Service

Chairman Madden of the house committee on appropriations presented the annual appropriation bill of the Department of the Treasury for 1924 to the House this week. The measure contains appropriations for the U. S. Public Health Service covering the salaries and allowances of the personnel as well as office expenses. For the maintenance of a hygienic laboratory, $45,000 is appropriated; for quarantine service, $488,000; for prevention of epidemics, $335,042; for interstate quarantine service, $23,000; for rural sanitation, $50,000; for the regulation of the production of serums and toxins, $41,500, and for the maintenance and expenses of the Division of Venereal diseases, $227,353. Appropriations are also contained in the bill to cover the expenses of medical examinations by the U. S. Public Health Service of immigrants and aliens at the principal ports of the United States.

Health in the Navy

Health conditions in the Navy for the calendar year 1921 were better than they have been for any year since 1917, according to the annual report of Rear Admiral E. R. Stitt, Surgeon-General of the Navy. During the first four months of the year, the admission rates for diseases, particularly measles and mumps, he explained, were higher than might have been expected in peace time, but, during the remainder of the year, the morbidity rates for the Navy were lower than they have been at any time during the last twenty-two years.

Dr. Rupert Blue to Represent United States

The Secretary of State, Mr. Hughes, has notified the League of Nations at Geneva that Dr. Rupert Blue, foreign representative in Europe of the U. S. Public Health Service, has been designated as official collaborator of the United States with the league in the work of the consultative commission on traffic in opium. Dr. Blue will represent the United States at the next session of the commission held January 3.

Appropriation for Sheppard-Towner Maternity Law

The appropriation bill for the Department of Labor, which was reported from the Appropriation Committee of the House and introduced in Congress this week, carries $120,000 to investigate matters pertaining to the welfare of children and child life. The sum of $1,240,000 is appropriated also for the promotion of maternity and infancy, in accordance with the Sheppard-Towner maternity law passed by Congress last year.

Bill Introduced to Sell Hospital

The Marine Hospital Reservation in the city of Wilmington, N. C., is to be sold according to the terms of a bill introduced in Congress by Representative Lyon. This hospital at Wilmington has not been used by the government for some time and is no longer needed for governmental purposes.

Radio Health Service

The U. S. Public Health Service has just completed the first year of its use of the radio service in disseminating public health information. Broadcasts are now sent through ten stations; 104 public health broadcasts have been released during the year by which appeals have been made for prompt medical treatment, dental hygiene, personal hygiene, community hygiene and sanitation. Radio has also been utilized in cases of epidemics occurring in various parts of the country.

Annual Report of Veterans' Bureau

The work of removing disabled ex-service men from contract hospitals to institutions directly under government control has been retarded somewhat by objections of patients being sent further away from home, according to the annual report, submitted to Congress by Director Charles R. Forbes of the U. S. Veterans' Bureau. Colonel Forbes also told Congress of the necessity for expediting the government's new hospital program. Nine of the hospitals now in use, comprising 3,700 beds, have about reached the point where deterioration is so complete that repair will be impossible and they must be abandoned. These hospitals are of the cantonment type. More than 850,000 claims for compensation have been filed with the bureau since government aid for veterans began, and, of those, all but 45,000 have received medical examinations and their cases acted on. Applications received for vocational training number 630,000 of which 56,000 were pending at the end of the year.

Promotions of Health Officers Confirmed

The promotions of the following commissioned officers of the U. S. Public Health Service were confirmed by the Senate this week: O. M. Spencer to assistant surgeon; R. B. Norment to passed assistant surgeon; R. L. Allen, O. H. Cox, M. S. Lombard, C. Michel, W. F. Tanner, W. C. Witte, and J. F. Worley to surgeons.

Ex-Service Physicians to Treat Veterans

Declaring that thirty-two medical officers serving in the U. S. Veterans' Bureau never saw service during the World War but remained home in private practice, the American Legion has asked that an investigation be conducted and that these officers be discharged and replaced by physicians who are ex-service men. The charge also is to the effect that, of this thirty-two, sixteen hold the highest medical offices in the U. S. Veterans' Bureau. The American Legion is also planning to draw up a bill to be submitted to Congress providing that only medical officers with war records be allowed to care for and treat disabled veterans now confined as patients in government hospitals. It is also alleged that surgeons in the U. S. Public Health Service are also being used in government hospitals who have never been in the service.

Fund for Nursing Disabled Veterans

Disabled ex-soldiers so helpless as to need an attendant will be allowed $50 a month to employ a nurse, according to the bill that passed the House after being amended by the Senate this week. The measure goes to the President for his signature. Formerly, disabled veterans received the sum of $20 a month, to be used to pay for the services of a nurse or attendant.

Bill to Authorize Hospital

The Baptist National Hospital Association of the State of Arkansas is authorized to occupy and use a site containing

6 acres of land in the Hot Springs National Park, Ark., should the bill introduced by Senator Robinson in the Senate be ultimately adopted by both houses of Congress. The association plans to erect a hospital on the property. The Secretary of the Interior is given authority to select the site.

Hospitals Authorized

The organization of an evacuation hospital, organized reserves, to be known as Evacuation Hospital No. 19 (Davis-Fischer Sanitarium Unit, Atlanta, Ga.), of General Hospital No. 10 (Pennsylvania Hospital Unit, Philadelphia), of Surgical Hospital No. 16 (Southern Pacific Hospital Unit, Houston, Texas) has been authorized.

Foreign Letters

PARIS

(From Our Regular Correspondent)

Nov. 24, 1922.

Relations of French Universities with Foreign Countries

In a recent number of the *Revue de France*, M. Firmin Roz has an interesting article on the relations of our universities to foreign countries. For a number of years we have made serious efforts to induce foreign teachers and students to visit France, and to open up the way for our teachers and students to reside for a time for study in some foreign country. The management of the matter has been entrusted chiefly to the Office national des universités et écoles françaises, which is the representative of the large institutions of higher learning. Every year, two American universities, Harvard and Columbia, open their classrooms to a representative of higher education from France. These French professors remain at their post for a year or at least one semester. With the school year 1921-1922 was begun the exchange of professors of applied science between several large universities of the United States and the universities of France. In many other universities and colleges of the United States, French instructors and professors hold permanent positions. There are also about twenty in British universities, and around thirty in the secondary schools of Great Britain. In the Scandinavian universities (Copenhagen, Christiania, Upsala and Lund), four positions are held by French lecturers. In the Netherlands (University of Utrecht), one of our most distinguished mathematicians has been teaching for the last three years, and has been honored by being chosen a member of the Royal Academy of the Hague. With Belgium we concluded, June 17, 1921, "an agreement concerning scientific, literary and scholastic relations." With Italy a similar agreement was signed, March 5, 1919. A French professor has also received a call to the University of Sofia. Another is giving instruction in the University of Warsaw. The universities of Krakow and Poznan claim one each. June 15, 1919, an agreement was signed with Roumania, where a veritable French university mission, so to speak, consisting of thirty-three professors, is to be established.

For the last three or four years, there has also been an exchange of students—men and women—between France and foreign countries, more particularly with the United States, where, since 1918, many scholarships for foreign study, especially for women, have been offered. As evidence of appreciation of this generous offer of the American universities, the French government placed at their disposal thirty more scholarships in our best educational institutions for women, such as the Ecole normale supérieure in Sèvres. The American Field Service, in turn, has dedicated the balance left in its treasury, at the close of the war, to the founding of thirty scholarships to be used for study at various French universities, some of which have shown their approval of the plan by establishing supplementary scholarships in favor of American and other foreign students.

Reopening of the Sorbonne

The University of Paris will hold tomorrow its *séance de rentrée* (reopening ceremonies) in the Sorbonne. The address of the day will be delivered by the rector of the university, M. Paul Appell. On this occasion, the diploma and the insignia of doctor *honoris causa* will be presented to: Mr. Masaryk, president of the republic of Czechoslovakia and professor of philosophy in the University of Prague; Mr. Benès, minister of foreign affairs of Czechoslovakia and professor of sociology at the University of Prague; Dr. Bordet, professor at the University of Brussels; Dr. Ehlers, professor at the University of Copenhagen; Mr. Lawrence Lowell, president of the University of Harvard; Mr. Lugeon, correspondent of the Academy of Sciences and professor at the University of Lausanne; Mr. Michelson, associate member of the Academy of Sciences and professor at the University of Chicago; Mr. Pirenne, professor of the University of Ghent; Mr. Rajna, professor of the University of Florence, and Mr. Elihu Root, the former secretary of state.

A New Service of Radium Therapy

The new service established in the Hôpital Tenon for the radium treatment of cancer has just been opened by the ministry of public health.

Competitive Examinations for Externships in the Hospitals

Partly owing to the fact that 150 externships have been abolished, the number of available openings was much reduced this year, whereas the number of applicants was particularly large. Charging, among other things, that the questions asked gave undue advantage to certain applicants, which amounted to favoritism, the candidates have of late indulged in rather vigorous complaints against the jury of award.

Congress of French-Speaking Alienists and Neurologists

The coming congress of French-speaking alienists and neurologists will be held at Besançon in August, 1923. It will be presided over by Dr. Henri Colin, chief physician of the Asile clinique Ste-Anne. The topics to be discussed are: psychanalysis, by Dr. Hesnard of Bordeaux; nervous troubles resulting from supernumerary ribs, by Dr. André Thomas of Paris, and crimes resulting from toxicomanias, exclusive of alcoholism, by Dr. Legrain of Paris.

VIENNA

(From Our Regular Correspondent)

Nov. 27, 1922.

Effect of Small Doses of Roentgen Rays on Functional Disorders of the Ovaries

At a recent meeting of the Medical Society of Vienna, Professor Thaler called attention to the excellent effects of small doses of roentgen rays in functional diseases of the ovaries. The investigator has been following this kind of work for more than two years, and has treated 147 women for hypofunction of the ovary for a prolonged time (up to two years). He administered from 6 to 8 units at a focal distance of 23 cm. from the skin, over an area extending from the umbilicus to the symphysis. An aluminum filter 3 mm. thick was employed. The treatment was repeated after eight days and once more thereafter, from four to six weeks. He usually applied the treatment from six to eight days after the menses. Several authors have reported good results in amenorrhea and in prolonged bleeding due to hypofunction of the ovaries. He is not quite sure whether the effect of the roentgen rays is

due to direct action on the ovaries, or to a secondary action, the primary being directed on the lymphocytes of the intestinal canal. Thaler thinks that hypofunction may be assumed, wherever amenorrhea, neurotic vasomotor disturbances or too frequent bleedings are present. Dysmenorrhea and sterility are often combined, which shows the importance of the hypofunction, a consequence of abnormal rapidity of destruction of the corpus luteum.

In the 147 cases, there were sixty-two patients complaining of amenorrhea, of whom fifty-five presented secondary cases; i. e., the periods had been present orginally but had ceased. Seventy per cent. of the secondary cases were cured, and 60 per cent. of the primary. The result is obtained in from two to six weeks after treatment, and must be regarded as due to an incitement of an otherwise too weak ovulation. In women over 35, the effect is often negative. A patient not benefited by two or three exposures should not receive any further doses. In thirty-two cases of too frequent menstruation, eleven patients were benefited by the rays. A repeated exposure can in such cases produce a total suppression of menses; therefore, one must be careful to select suitable cases. An interesting feature is the disappearance of the adiposity so often noticed in connection with too weak menstruation.

Frequency of Bacillus Mucosus-Capsulatus Infection in Otitic Complications

Quite recently, in spite of the otherwise good health of this city, there occurred a widespread epidemic of tonsillitis, of a mild type, for the most part, but in a number of cases followed by abscess formation, both in the peritonsillar region and in the ears. The onset of the otitic complications was usually insidious, but gradually the inflammation lost its progressive character, and there was little to complain of except deafness and moderate fever. This lasted for six or eight weeks without much change, in spite of all conservative treatment. When at last these patients were prompted to undergo operation, it was found that most extensive destruction of the bones had taken place; in fact, several cases ended fatally even before operation, by extension of the inflammation to the meninges, without symptoms. In all these cases, *Bacillus mucosus-capsulatus* could be demonstrated. The otologic clinic in Vienna has for many years pointed out how dangerous infection with *B. mucosus-capsulatus* is, and how urgent it is to operate as soon as the condition is recognized; otherwise, the most unexpected complications are likely to arise. Any otitis in which, after four weeks of regular treatment, there coexist deafness, fever and even slight tenderness over the mastoid or the antrum region is most suspicious, even if the membrane shows scarcely any pathologic changes. Here, operation is the safest method of treatment. This truth has already been impressed on the profession in this city.

Surgical Interference in Stomach Bleeding

Prompted by a coincidence of several fatal cases of hemorrhage from gastric ulcer, Dr. Finsterer suggested, four years ago, that acute bleeding from this source should be checked by surgical methods. This suggestion encountered numerous objections, but at present, as he explained at a recent meeting of the surgical society, his position is strengthened by results obtained and by researches in the histories of 53,000 necropsies performed within the last ten years in several Vienna hospitals. Among that number, there were 1,292 cases with distinct scars after solitary or multiple ulceration in the stomach, among which there were 190 cases with erosion of larger vessels and 121 cases of perforation, with twelve cases of severe anemia. The opponents of surgical interference in acute hemorrhage state that death is rarely caused by hemorrhage, and that internal treatment is followed by better results than operation. But in this country, fatal cases are by no means rare. It is true that bleeding may result from other conditions (nephritis, syphilis, cirrhotic liver or erosions); but, if the patient is weakened by prolonged hemorrhage, his chances after operation are much worse than if the operation is done in an early stage. Therefore, Dr. Finsterer advocates early interference.

It is not difficult to find the ulcers if care is taken to observe the color of the mucous membranes, and the mortality in his hands is below 5 per cent. As long as only small arteries are eroded, the bleeding need not be profuse; but he has seen erosion of the median colic or the arteria gastrica sinistra. Early operation also prevents the formation of perforations, which are situated mostly on the anterior wall. The diagnosis "nervous stomach" should always be made very cautiously, for many of these patients have ulcers. Constant pain is a signal of danger, while the sudden ceasing of hematemesis might also be due to occlusion of the cardia. The best method is resection, which, however, is impossible if a duodenal ulcer is near the papilla. An exploratory laparotomy is at times indicated. Local anesthesia is usually sufficient for this operation; splanchnic anesthesia is not advisable. Roentgen rays are most useful in establishing the diagnosis, but the surgeon should not rely on this means, for every acute, prolonged hematemesis should prompt the physician to remove the source of bleeding, if possible.

In the discussion that followed the reading of this paper, it became clear that the majority of the physicians were not willing to advocate active interference, but they agreed that passive treatment alone could not be relied on.

Official Help by Lantern Slides for Public Lectures

In order to assist public health lecturers in their task of instructing lay audiences, the ministry of public health has collected 800 lantern slides dealing with the fight against tuberculosis; prevention and cure of venereal diseases; animal parasites in human beings; the feeding of infants and adults; problems of hygiene; bacteriology, anatomy and physiology of man; poisons and intoxicants; industrial injuries; the dangers of dust, and electricity and its dangers. These lantern slides have been prepared by order of the ministry, and have been used extensively for public education, chiefly by medical men. In future, the lecturer desirous of obtaining these slides may borrow them, and may even be supplied with a projecting apparatus if he satisfies the officers of the ministry of his good faith. Especially are physicians affiliated with the antialcohol and antisyphilis movements encouraged to use these collections. At present our militia, the students leaving the upper classes of our high schools, and the members of clubs for working people, frequently make up the audience at these lectures; and as the force of the spoken word, together with interesting demonstrations, is much stronger than that of the written word, the effect on the youthful minds is most gratifying and lasting.

Fee Splitting and Medical Ethics

In the course of a lawsuit between the director of a well known sanatorium for the upper classes and a committee of the shareholders, it was contended that a considerable proportion of the net profits had been used for the purpose of grants to the medical men who patronized the institute. This announcement at once caused an outburst of indignation from all classes of the profession, especially from physicians in the capital; and in due time proofs for the statement will have to be put in the hands of the court. Meanwhile, the medical council of Vienna has taken up the matter. In this country, there is no written law that would prevent a physician's participating in the profits of a sanatorium to which he

had sent patients; only the ethics of the profession prohibit this. In the same way, fee splitting is not expressly forbidden. Nevertheless, it is regarded by all as bad form and an unworthy practice; but it must be said that it is done, and the present hard times have placed medical practice in this country on a more commercial basis than is thought good by the older physicians.

There is one very important lack in the education of the would-be practitioner: The curriculum does not contain a lecture or a class on medical ethics, and thus the medical student has no opportunity to learn what his confrères expect him to do in a conflict between morals and personal interest. Although it must be stated that the overwhelming majority of physicians live up to the medical code of ethics, it would be hypocrisy not to admit that fee splitting has always existed and has even made marked progress within the last few years. The custom of asking the physician of the patient to assist at the operation performed by the specialist or consultant whom he has recommended is only natural, and is widespread, not only in this country but also all over the world. But the fee he gets for this assistance is very often paid by the surgeon, too, and it amounts at times to from 20 to 30 per cent. of the total fee. Similar conditions seem to have prevailed in the sanatorium mentioned above, and the outburst of indignation has turned chiefly against the businesslike splitting of net profits. There is no doubt that a purification of medical customs is necessary and urgent, for the patient must know that he can rely on his medical adviser not only in medical matters but also in money matters.

Refusals of Chair of Chemistry in Vienna University

For about two years, the directorship of the second chemical institute of this city has remained vacant, because four chemical investigators from Germany, with whom negotiations had been opened, refused to accept this office. The main reasons for their refusal are that the chemical institute came into existence during the war, and is not yet completed; the new director of the institute would have to devote all his time to its needs, its completion, and the organization of the work, including the teaching; he would thus have no time at his disposal for his own research work for several years. The German scientists who have been asked to accept the office will not resign the possibility of private work as offered to them in their present positions in the small universities of Germany, such as Professor Freudenberg has in Karlsruhe. Furthermore, the new man coming to Vienna from abroad would have great difficulty in finding a private lodging, and the institute does not offer accommodations of this kind. In Vienna there are at present no free lodgings; 38,000 couples have applied, but there are only 7,500 lodgings at the disposal of the board entrusted with their disposition.

This argument is a most forcible one. Therefore, the senate of the university will have to secure a scientist living in Vienna or in its vicinity, or a man from one of the two other Austrian universities, who might be accommodated by friends in this city. It is most unfortunate that, without any fault of the corporations or official boards, Vienna cannot obtain the services of the men best fitted for such an eminent position; for the institute is most up to date, and would no doubt give excellent opportunities for a highly qualified investigator, if only the task of completing and equipping all the laboratories and institutes connected with it were taken off his shoulders.

A New Institute for Medical Students

By the munificent grant of more than $100,000, given by Mrs. Guggenheim, the Vienna medical faculty was enabled to open new and well furnished quarters for students of medicine who are unable to learn at home owing to lack of fuel and books. Arrangements for accommodation of students, together with a museum containing a large number of specimens, will allow the young people to pass their time there in well ventilated, well heated rooms and to continue their daily work. Lectures both by advanced students and by teachers will be held there, too; and absolute freedom from racial or religious prejudice in the management was a condition of the founder. The medical faculty has taken over the institute, and will make a report every half year to the donor.

Bicentenary of Birth of Auenbrugger

Leopold Auenbrugger was born in Graz, Nov. 19, 1722. In 1761, he published a treatise in Latin which, in ninety-four pages, described all the signs of percussion of the lungs, with which every medical man nowadays must be familiar. He embodied in it the results of his most painstaking and persevering study, controlled at the dissection tables. Although his teaching proved absolutely correct, it made no impression on his contemporaries; and it was not until half a century later that it was fully accepted, through the efforts of Corvisart. Auenbrugger lived in Vienna, not overburdened by honors and riches, and died in 1809, at the age of 87. A facsimile edition of his booklet, with the English, French and German translations appended, has been published in Vienna under the original title, "Inventum novum ex percussione thoracis humani ut signo abstrusos interni pectoris morbos detegendi."

BERLIN

(From Our Regular Correspondent)

Nov. 25, 1922.

Birth and Death Rates in Germany Before and Since the War

If we compare the birth and death rates of Germany before the war with the figures for 1920 and 1921, they will be found to be surprisingly uniform. As is brought out in an article in the *Deutsche medizinische Wochenschrift* by the statistician of the central public health bureau, Dr. Roesle, since 1920, the year in which the effects of the war on the vital statistics ceased to be felt, the trend is much the same as it was from 1901 to 1913. The agreement is so marked that, from the reported records, one gets the impression that there must be an immediate connection between this recent period and the period before the war. Not only the birth rates but also the death rates seem to lap right on to the birth and death rates before the war. The following year, both figures drop, so that 1921 stands out for its low birth and death rates. In spite of this fact, the excess of births over deaths was 11.3 higher, per thousand of population, than was commonly the case at the time of the greatest frequency of births. The decrease in the death rate in 1921 as compared with 1920, namely, 1.2 per thousand, was much greater than the decrease in the birth rate (0.7 per thousand) for the same period, which explains the increase in the excess of births over deaths. However, it is to be considered that the year 1921, owing to the extremely favorable weather conditions, was an exceptional year, and that we cannot always expect such a favorable death rate. The present trend in vital statistics becomes even more apparent if we view the conditions in the cities of more than 15,000 population. Here the decrease in both the birth and the death rate for 1921 was much greater than the previous year. As was also the case before the war, the cities have now a lower birth and death rate than the small towns and rural districts, and among the cities it is the largest that present the lowest birth and death rates.

Methods of Selecting Industrial Employees

The first meeting in the interest of applied psychology, held in Berlin recently, was organized by the group for applied

psychology, made up of members of the Gesellschaft für experimentelle Psychologie. Of the many fields of application of psychology, only one was considered at this meeting; namely, industrial or vocational psychology, which, dealing with psychotechnical procedures for establishing experimentally the qualifications of applicants for industrial positions, has awakened, since the war, marked public interest. During the intervals between transactions, opportunity was given to inspect the psychotechnical apparatus of various industrial plants. The first part of the session was devoted to the exhibition of the many psychotechnical methods used in establishing various findings of industrial significance. At the close of the session, a resolution was adopted to the effect that all persons who, in an official capacity, have to do with vocational guidance should accord to psychology the important place it deserves.

Constitution in Relation to Individual Characteristics

On the basis of observations on psychopaths, Dr. Kretschmer, a neurologist and psychiatrist of Tübingen, has established two constitutional types — pycnic (compact, shrewd, guarded) and schizophrenic—which correspond to the great main divisions of mental disease (the manic-depressive category and dementia praecox). He has carefully observed the temperamental manifestations, the characteristics and the natural aptitudes (*Anlagen*) of these two types, extending the scope of his researches to persons outside the hospital, and he has reached the conclusion that, physically and psychically, all persons betray symptoms of one type or the other, so that the pathologic symptoms of mental disease are merely accentuations of already existing characteristics. Kretschmer has prepared a character chart which sets forth graphically the physical differences and the various characters (*Anlagen*) of each constitutional type, so that the appearance of a person is an index of his general character and disposition, and vice versa, the manifestations of character serve as an index of his constitution. By means of numerous illustrations, Kretschmer has explained in an engaging way in his book "Körperbau und Charakter" the results of his researches. He also gives an application of his system by analyzing the characters of several noted men.

His analysis establishes an unquestionable parallelism between temperament and body. He noted that the natural, tender, well-rounded types which oscillate between the merry and the sad, between the active and the corpulent, are expressions of the pycnic or compact constitution. With the pycnic constitution are associated marked development of head circumference, chest girth and abdominal contour, with a tendency to corpulence and a heavy-set figure; the shape of the face resembles a flat pentagon or a broad shield. In contradistinction to this type, the schizophrenic oscillates between hypersensibility and indolence, between flightiness and inflexibility. He is guarded, fitful and obstinate, and has either a spare, slender body with poorly developed muscles and a flat chest, or he is an athlete with a hard-muscled, broad-chested frame and unwieldy extremities, but lacking the typical rotundity characteristic of the pycnic types. The profile of the face shows an acute angle or a long nose. If the body is of the athletic type, it usually supports a head with a high, rugged brow (turricephalus). The face has the shape of an abrupt or shortened oval.

Living Conditions as Affecting the Schoolchildren of the Large Cities

In order to gain an insight into the living conditions as affecting the schoolchildren of our larger cities, Dr. Kurcharski had a comprehensive questionnaire filled out by 1,367 children, or 24 per cent. of the children in the public schools of Pankow, an outlying section of Berlin. The children belonged mainly to the poorer classes. He reports the results of his investigations in the *Zeitschrift für Bevölkerungspolitik und Säuglingsfürsorge*. Inquiries were made in regard to the parents of each child, the home in which the child lived, the hygienic surroundings, and the environment as affecting the child's life. Only 8 per cent. of the children were in a good state of nutrition, while 21 per cent. were much undernourished. Mentally—judging from their achievements in school—16 per cent. were designated as backward. It was shown that unfavorable social conditions, such as overcrowded apartments, lack of employment of the father, and inadequate care on the part of a working mother, exerted a harmful effect on the mental development of the schoolchildren. It could not, however, be shown that any damage to physical development had occurred as the result of these conditions.

PRAGUE

(From Our Regular Correspondent)

Dec. 1, 1922.

Tuberculosis Death Rates

The publication of the tuberculosis death rate figures for the year 1921 was an agreeable surprise to all tuberculosis workers. The death rate declined in Czech provinces from 1886 until the World War, when it was 263 per hundred thousand in Bohemia and 323 in Moravia. The World War brought a radical increase in tuberculosis mortality, which was highest in 1918: 362 in Bohemia and 378 in Moravia. The year 1919 brought a reduction of 14.5 per cent. of the death rate of 1918, and the following year, a total reduction of 31.5 per cent. The tuberculosis mortality for 1921 in Bohemia is 190, a reduction of 47.5 per cent. for the year 1918. A similar condition is found in Moravia, where the rate fell to 230, marking a reduction of 39 per cent., in comparison with the year 1918. There is no doubt that the return of peace-time conditions largely accounts for the decline in tuberculosis mortality. But if the tuberculosis mortality had preserved the prewar trend of decline and had not been interrupted by the war, the mortality should be about 200 per hundred thousand. The difference in the actual mortality seems to justify the conclusion that the active antituberculosis measures which were instituted in Czechoslovakia after the war have shown their results in the more rapid decline of the curve.

These figures controverted the views of the pessimists, who expected a rise in tuberculosis mortality for this year, on the assumption that the after-war decline of mortality was due to the fact that during the war most of the tuberculous patients had died who would have died later under normal conditions, and that this fact is responsible for the fallacious rapid decline of the death rate in the after-war period.

Elections in Medical Organizations

In October, elections to the chambers of physicians were held in Bohemia and Moravia. These chambers are autonomous institutions, the duty of which is to defend the interests of the medical profession, on the one hand, and to maintain the discipline and standards among its members, on the other. This institution, introduced under Austrian rule, proved effective. It was every practitioner's duty to belong to the chamber of physicians of the province in which he lived. Only state health officers and army surgeons were exempt. The chamber of physicians of the province of Bohemia has had 2,106 members in the Czech and 1,689 members in the German section in the first half of 1922, a total of 3,975 physicians in the whole province, or one physician to 1,850 of the population. Similar chambers exist also in the province of Moravia and in Silesia, but do not exist

in Slovakia and Carpathian Russia. Therefore, a bill is being presented in parliament to introduce these institutions in all provinces of the Czechoslovak republic. This bill will bring about some changes in the general organization of the chambers. The membership in the chambers will be made obligatory to state health officers, exempting only army surgeons. This was done by specific request of the central organization of state health officers, who wished to become regular members of the chambers. There is no reason why the state health officers should fear the jurisdiction of the chambers, and it is hoped that a certain prejudice against the state health officers which has survived in the medical profession will be removed.

The chambers will have a committee and an executive committee elected for the period of five years. A special committee will be appointed on questions of discipline. This committee will have executive power in the case of offenders against the rules of the chambers, which formerly belonged to the executive committee. At the same time, the question of specialization in medical practice will be settled. Up to now, the chamber had the right to grant the title of specialist to the physician who applied for it and who presented documents as to his qualification in a given specialty. There were no uniform rules for the granting of this title, and the question was always decided according to precedent. The bill will give the state administration the right to set up standards for specialization. It will also be necessary for the chambers of physicians to be assisted by the state administration in enforcing these rules, because past experience shows that the decisions of the chambers have been frequently disregarded, although these institutions have contributed enormously in keeping up the high standard of the medical profession in this country.

Russian Medical Students

The Prague Czech university has assembled the greatest number of Russian refugee students, 2,200. The medical faculty has a large percentage of these students, who for the most part attend the first and second years of the medical curriculum. There are 193 Russian students in these two years. The new Brno medical faculty has thirty-seven of them. The Russians, of course, are not the only foreign element at the Czechoslovak medical faculties, where the local students amount to less than 50 per cent. of the students. The comparatively small medical faculty in Brno counts also among its students seven Jugoslavs, one Pole, two Bulgarians, seven Roumanians, one Austrian and fifteen Ukrainians. While it would be difficult for the Czechoslovak government to refuse hospitality to the students of kindred nations, there is no doubt that the presence of such a large percentage of foreign students renders teaching especially difficult, and the opportunity for practical training of local students is necessarily limited.

Marriages

J. GRADY BOOE, Bridgeport, Conn., to Miss Myrtle Louise Heinzerling of Statesville, N. C., October 21.

FLORAU WILLIAM DIRMANN, JR., to Miss Mabel Rita Ladet, both of New Orleans, November 30.

MAURICE B. KARATZ to Miss Esther Hannah Shlensky, both of Chicago, November 14.

IRVING GRAY to Miss Mildred Elizabeth Zilver, both of Brooklyn, December 6.

LEO BRADY, Baltimore, to Miss Lucy McCormick Jewett of Chicago, December 5.

PAUL F. TITTERINGTON to Miss Marian Millen, both of St. Louis, in November.

Deaths

Alfred Eugene Bradley ✠ Colonel, M. C., U. S. Army, retired, Highland Park, Ill., died, December 17, in Montgomery, Ala. Colonel Bradley was born in Jamestown, N. Y., in 1864. He was graduated from the Jefferson Medical College, Philadelphia, in 1887, and in the following year entered the medical service of the army. He followed the regular routine of promotion, becoming lieutenant-colonel in 1910. When our country entered the World War he was made colonel in July, 1916, and in August, 1917, a brigadier-general of the National Army. In May, 1916, he was made military observer with the British armies, on duty at the American embassy in London. This service he filled until June, 1917, when he was appointed chief surgeon of the American Expeditionary Forces in France. For his services abroad he was awarded the Distinguished Service Medal with the following citation: "For exceptionally meritorious and distinguished services as Chief Surgeon, A. E. F. He gave his utmost energy and undivided devotion to the duty of planning and organizing the work of the Medical Department in France during a period fraught with untold difficulties. To his foresight were largely due the successful operations of that department when it was called upon to meet the demands that were subsequently made upon it."

Colonel Bradley was invalided home from France in June, 1918, and was operated on for lung abscess at the station hospital at Fort Totten. His condition, however, failed to improve and he was retired on March 13, 1920. Colonel Bradley was buried at the Arlington National Cemetery, Washington, D. C., with military honors.

Joseph Gurney Pinkham ✠ Lynn, Mass.; Long Island College Hospital, Brooklyn, 1866; medical examiner of the Essex district for forty-three years; for thirty years chief surgeon at the Lynn Hospital and consulting surgeon at the Danvers State Hospital for the Insane; member, and formerly chairman, of the board of education; president of the Commonwealth Bank; president of the Massachusetts Medico-Legal Society and at one time vice president of the Massachusetts Medical Society; died, December 1, aged 83, from arteriosclerosis.

George Henry West, Fairmont, N. C.; University of Maryland School of Medicine, Baltimore, 1889; Jefferson Medical College, Philadelphia, 1892; at one time lecturer on histology at Jefferson Medical College; formerly connected with the Jefferson, Polyclinic and Presbyterian hospitals, Philadelphia; for twenty-five years a practitioner in Philadelphia, where he died, October 30, in the Pennsylvania Hospital, aged 60.

Henry H. Schuhmann ✠ Highland Park, Ill.; Hahnemann Medical College and Hospital of Chicago, 1893; died suddenly, December 18, from heart disease. Dr. Schuhmann graduated in dentistry from the University of Michigan, Ann Arbor, in 1889; he was first president of the Chicago Dental Research Club and served also as senior attending dental surgeon to the Michael Reese Hospital, Chicago.

Charles Horace Francis ✠ Chicago; Bennett Medical College, Chicago, 1894; associate professor of ophthalmology at the Chicago Polyclinic and oculist to the Chicago Union, Francis Willard and Cook County hospitals; member of the American Academy of Ophthalmology and Oto-Laryngology and the Chicago Ophthalmological Society; aged 51; died, December 16, from carcinoma of the bladder.

Forest Alphonso Carpenter ✠ Statesville, N. C.; North Carolina Medical College, Charlotte, N. C., 1906; part owner of the Carpenter-Davis Hospital; served in the M. C., U. S. Army, during the World War; specialized in ophthalmology, otology, laryngology and rhinology; aged 43; died, December 2, at the Battle Creek Sanitarium, Battle Creek, Mich., from cerebral hemorrhage.

Francis Asbury Coward, Helena, Mont.; Medical College of the State of South Carolina, Charleston, 1900; director of the hygienic laboratory and epidemiologist of the state board of health, a position he previously held in South Carolina; served in the M. C., U. S. Army, during the World War; aged 45; died in a local hospital, November 29, from bulbar paralysis.

Luther Sexton ✠ New Orleans; Tulane University of Louisiana School of Medicine, New Orleans, 1881; assistant professor of clinical minor surgery and for twenty-five years lecturer on surgery at his alma mater; visiting surgeon to

the Charity Hospital; formerly member of the board of health; aged 62; died, November 30, following a long illness.

Everett Thornton Nealey ✠ Bangor, Maine; Bowdoin Medical School (Medical Department of Bowdoin College), Portland, Maine, 1883; for many years county medical examiner; formerly on the staff of the Eastern Maine General Hospital; aged 65; died, November 26, at the Grace Private Hospital, from pernicious anemia and chronic nephritis.

Christopher Franklin Barker, Newport, R. I.; Medical Department of the University of the City of New York, 1882; member of the representative council; member, and at one time president, of the board of health; at one time member of the school board; aged 73; died, November 28, following a long illness.

Robert M. Bolenius ✠ Lancaster, Pa.; University of Maryland School of Medicine, Baltimore, 1873; formerly president of the Lancaster County Medical Society; member and at one time secretary of the school board; consulting physician to the Lancaster and St. Joseph's hospitals; aged 75; died, October 13.

Frederick Artemas Simonds, Wakefield, Mass.; Tufts College Medical School, Boston, 1914; member of the Massachusetts Medical Society; served in the M. C., U. S. Army, during the World War; formerly on the staff of the Boston City Hospital, Boston; aged 34; died, December 2, from heart disease.

Maurice Goldberg ✠ Philadelphia; Jefferson Medical College, Philadelphia, 1904; formerly instructor of clinical obstetrics and pediatrics at his alma mater; at one time connected with the Jefferson, Mount Sinai and Polyclinic hospitals; aged 43; died, November 29, from tuberculosis.

John E. Pace, Scottsville, Ky.; Hospital College of Medicine, Medical Department, Central University of Kentucky, Louisville, 1889; member of the Kentucky State Medical Association; formerly member of the state board of health; aged 64; died, November 24, following an operation.

Leo Caplan ✠ St. Louis; University of Vienna, Austria, 1891; member of the American Academy of Ophthalmology and Oto-Laryngology; formerly laryngologist to the Bethesda Homes and the St. Vincent Orphan Asylum; aged 57; died, November 25, in Vienna, Austria, from carcinoma.

Dempster W. Woodworth, Ellsworth, Wis.; Western Reserve University School of Medicine, Cleveland, 1868; Bellevue Hospital Medical College, New York, 1876; formerly member of the state legislature; aged 76; died, November 29, at the St. Luke's Hospital, St. Paul, Minn.

Moses Murray Feinberg, New York; Columbia University College of Physicians and Surgeons, New York, 1913; member of the Medical Society of the State of New York; examining physician at the Lebanon Hospital; aged 34; died, December 1, from malignant endocarditis.

George Wright Pattison, Buffalo, N. Y.; University of Buffalo Department of Medicine, 1869; member of the Medical Society of the State of New York; aged 77; died, November 27, at the Buffalo General Hospital, from injuries received when he fell downstairs.

Walter Harold McKay, Monrovia, Calif.; Starling Medical College, Columbus, 1913; served in France during the World War; for several years assistant physician at the State Institute for the Feebleminded, Columbus; aged 32; died, October 25, from tuberculosis.

Arthur D. Reagan, Easton, Pa.; Long Island College Hospital, Brooklyn, N. Y., 1890; member of the Medical Society of the State of Pennsylvania; at one time president of the Northampton County Medical Society; aged 62; died, December 2, from heart disease.

Hull S. Gardiner, Hamilton, N. Y.; Bellevue Hospital Medical College, New York, 1868; member of the Medical Society of the State of New York; county coroner; aged 82; died, November 17, from injuries received when knocked down by an automobile.

Alva Hays Caven ✠ Youngwood, Pa.; Western Pennsylvania Medical College, 1901; served in the M. C., U. S. Army, during the World War; formerly member of the board of health; aged 45; was struck and instantly killed by a railroad train, December 1.

Harry Richard Smith, Appalachia, Va.; Kentucky School of Medicine, Louisville, Ky., 1908; member of the Medical Society of Virginia; served in the M. C., U. S. Army, during the World War; aged 36; died suddenly, November 27, from cerebral hemorrhage.

James Carlisle Harmon, McCormick, S. C.; Jefferson Medical College, Philadelphia, 1918; served in the M. C., U. S. Army, during the World War, with the Jefferson Hospital Medical Unit; aged 28; died, November 26, at Bryn Mawr, Pa., from septicemia.

Henry Hart, Medford, Ore.; Chaddock School of Medicine, Quincy, Ill., 1887; member of the Oregon State Medical Association; for twenty years on the staff of St. Mary's Hospital; member of the board of health; died, November 29, from appendicitis.

Howard Paul Preston, South Bend, Ind.; Chicago Homeopathic Medical College, 1901; member of the Indiana State Medical Association; served in the M. C., U. S. Army, during the World War; aged 48; died, November 29, from appendicitis.

John W. Melton, Benton, Ark.; University of Arkansas Medical Department, Little Rock, Ark., 1904; member of the Arkansas Medical Society; aged 47; was instantly killed, November 30, when his automobile was struck by a passenger train.

Howard Samuel Perry, South Bend, Ind.; University of Illinois College of Medicine, Chicago, 1913; formerly of Chicago; served in the M. C., U. S. Army, during the World War; aged 33; died, November 29, from heart disease.

William W. Tompkins ✠ Charleston, W. Va.; Medical Department of Columbia College, New York, 1882; at one time president of the Kanawha Valley Medical Society; aged 61; died, December 2, from cerebral hemorrhage.

Meade Randolph Edmunds, Washington, D. C.; Department of Medicine of George Washington University, Washington, D. C., 1906; aged 40; died, November 30, at the Emergency Hospital, from accidental asphyxiation.

Alfred Hollis Flower, Boston; American Health College, Cincinnati, 1888; former president of the New England Eclectic Society; aged 66; died suddenly from heart disease in the railroad station at Marshfield, December 4.

Cornelius A. Barnett, Potsdam, N. Y.; Bellevue Hospital Medical College, New York, 1890; member of the Medical Society of the State of New York; aged 60; died suddenly, November 13, from cerebral hemorrhage.

John Potts Fillebrown ✠ Washington, D. C.; Bellevue Hospital Medical College, New York, 1897; on the staff of the George Washington University Hospital; aged 64; died, November 24, following a long illness.

Oscar J. Brown ✠ DeKalb, Ill.; Bennett Medical College, Chicago, 1898; formerly an engineer; aged 66; died, November 23, at the Washington Park Hospital, Chicago, from myocarditis, following an operation.

William M. Baldwin, Newark, Ohio; Cleveland University of Medicine and Surgery, 1869; although blind for the last twelve years, continued his practice; aged 75; died, November 29, from cerebral hemorrhage.

Blanche Josephine Barrus, Philadelphia; Woman's Medical College of Pennsylvania, Philadelphia, 1920; aged 34; died, November 23, at the home of her brother in Clinton, N. C., from carcinoma of the stomach.

Christopher C. Webb, Warrensburg, Ill.; University of Maryland School of Medicine, Baltimore, 1881; member of the Illinois State Medical Society; aged 72; died, December 1, from cerebral hemorrhage.

Emanuel Danzi, New York; University of Naples, Italy, 1897; member of the Medical Society of the State of New York; aged 48; died, November 17, at the Van Cortlandt Hospital, from pneumonia.

Charles A. Merritt ✠ Sand Coulee, Mont.; Bennett Medical College, Chicago, 1901; aged 46; also a druggist; superintendent of the Miners' Union Hospital, where he died, November 27, from pneumonia.

Charles William Galloupe, Boston; Medical School of Harvard University, Boston, 1883; member of the Association of Military Surgeons of the United States; aged 63; died, November 30, at Lynn.

James Kay, Nemaha, Neb. (licensed, Nebraska, 1891); gave up the practice of medicine in 1912 when he became disabled from an accident; veteran of the Civil War; aged 86; died, October 11.

Hannabal D. Fortune, Pleasant Hill, Ill.; Washington University Medical School, St. Louis, 1865; member of the Illinois State Medical Society; aged 81; died, November 28, from heart disease.

Edmund Thomas Murdaugh Franklin ✠ Washington, D. C.; Department of Medicine of George Washington University,

Washington, D. C., 1905; aged 40; died, December 2, at West River, Md.

Joseph George Burque, San Francisco; University of Montreal Faculty of Medicine, Montreal, Que., Canada, 1876; aged 73; died, November 24, from angina pectoris and arteriosclerosis.

Orestes C. Lukenbill ✠ Indianapolis; Medical College of Indiana, Indianapolis, 1892; aged 55; died, December 1, at the Battle Creek Sanatorium, Battle Creek, Mich., following a long illness.

Herman Wilfred Pierson, Wheaton, Ill.; University of Wooster Medical Department, Cleveland, 1881; practitioner in Chicago, 1893-1921; aged 66; died, December 3, from heart disease.

Harlan Hubbell, Laura, Ill.; American College of Medicine and Surgery, Chicago, 1906 aged 42; died, December 1, at the Peoria State Hospital, Peoria, from an overdose of a drug.

Collins M. Hoover ✠ Alliance, Ohio; Western Reserve University School of Medicine, Cleveland, 1874; on the staff of the Alliance City Hospital; aged 80; died, November 28.

Thomas C. Kiger, Los Angeles; Cleveland University of Medicine and Surgery (Western College of Homeopathic Medicine), 1859; aged 87; died, November 2, from senility.

Rocco Andrew Montani ✠ Youngstown, Ohio; Indiana University School of Medicine, Indianapolis, 1910; aged 38; was killed, November 26, when struck by a train.

Lee C. Wadsworth, Latonia, Ky.; Medical College of Ohio, Cincinnati, 1893; formerly president of the Newport Board of Aldermen; aged 57; died, November 27.

Eugene Webster Davis ✠ New York; Medical Department of the University of the City of New York, 1884; aged 69; died suddenly, December 1, from paralysis.

George Rosenthal, Pittsburgh; Western Pennsylvania Medical College, Pittsburgh, 1906; aged 39; died suddenly, November 30, from cerebral hemorrhage.

Douglas L. Sauerhering ✠ Wausau, Wis.; Chicago Medical College, 1886; for eight years city health commissioner; aged 61; died in November, from pneumonia.

Joseph A. Baute, Somerset, Ky.; Hering Medical College, Chicago, 1896; aged 54; died, November 26, from heart disease following an attack of influenza.

Augustus Philip Hauss, Sr., New Albany, Ind.; Eclectic Medical Institute, Cincinnati, 1879; aged 65; died, December 2, from cerebral hemorrhage.

K. Lane Miller, Roseburg, Ore.; Hahnemann Medical College and Hospital of Chicago, 1883; aged 58; died, November 28, from cerebral hemorrhage.

Andrew Joseph Edwards, Woodward, Ala.; Birmingham Medical College, Birmingham, Ala., 1912; aged 35; died, October 15, from influenza.

Barton Stone Plumlee, Nashville, Tenn.; University of Nashville Medical Department, 1874; aged 77; died, November 30, from pneumonia.

John H. Mitchell ✠ Mount Vernon, Ill.; Chicago Medical College, 1874; aged 72; died suddenly in his office, November 27, from heart disease.

A. Dill Greer, Lamoni, Iowa; Homeopathic Medical College of Missouri, St. Louis, 1900; aged 75; died, October 27, from angina pectoris.

Charles Adelbert Libby, Arlington, Mass.; New York Homeopathic Medical College, New York, 1873; aged 71; died, November 28.

Fred E. Stafford, Brooklyn; New York Homeopathic Medical College, New York, 1870; died, November 30, from asthma.

Henry C. Hornung, New Orleans (licensed, years of practice); aged 73; died recently, from acute bronchitis and asthma.

William Chambers Powell, Bryn Mawr, Pa.; Hahnemann Medical College of Philadelphia, 1879; aged 65; died, December 2.

Ray G. Doane, Lucas, Kan.; Kansas Medical College, Topeka, Kan., 1910; aged 41; died, November 24.

Reuben B. Garnett, St. Augustine, Fla.; St. Louis Medical College, 1874; aged 84; died, November 23.

David Rose, Baden, Pa.; Jefferson Medical College, Philadelphia, 1892; aged 70; died, November 16.

Walter B. Mott, Mount Mourne, Ga. (licensed, years of practice); died, October 23, aged 87, from senility.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE JOURNAL'S BUREAU OF INVESTIGATION, OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER GENERAL MATERIAL OF AN INFORMATIVE NATURE

COLLENE NOT ACCEPTABLE FOR N. N. R.

Report of the Council on Pharmacy and Chemistry

The Council has authorized publication of the following report which declares Collene not acceptable for N. N. R. because its composition is not correctly declared and because the therapeutic claims made for it are unwarranted.

W. A. PUCKNER, Secretary.

Collene (Collene Laboratories, Inc., New York) is said to be a solution in distilled water of 0.05 per cent. colloidal silver. The silver is claimed to be in the metallic state. The distinctive features of Collene as advertised are: (1) its colloidal nature, (2) the fineness and uniformity of the colloidal particles, (3) the absence of toxic effects and of a tendency to produce argyria, (4) its high potency in inducing increase of leukocytes and (5) its power to penetrate human tissues 3/16 of an inch. Collene is recommended:

> "For all purulent infections of the skin and mucus membrane as Conjunctivitis, Pharyngitis, Gingivitis, wounds, abrasions, etc., as a dressing; for Post-operative Sinuses, Cystitis, Colitis, Endocervicitis, chronic and acute, acute endometritis, Gonorrhea as an injection one-half to full strength; intravenously for general infections as Pyaemia, Purulent Endocarditis, pneumonia and post-partum infections."

These briefly are the salient points advanced in the claims for Collene. Many sweeping statements are made of superiority and therapeutic value but they are based on no adequate evidence. Before a product can be pronounced the "best" of all silver germicides, it must have been subjected to rational and controlled experiments involving other germicidal silver compounds. Collene can hardly be asserted "uniformly superior" to other germicides until such experiments have been conducted. Neither can a product be said to have its place established in the treatment of disease until there is acceptable evidence to that effect. The unwarranted recommendation of Collene for intravenous injection illustrates the case in point. Injection of "Colloidal silver" caused "a great increase of leukocytes even up to 100 per cent. or more." Provided Collene were a colloidal silver preparation it might produce leukocytosis, but even if it were colloidal, the evidence available hardly warrants the claim that "Collene should be found remarkably effective" in certain fevers, and much less the statement that it can be "safely used intravenously" in these fevers. Aside from the general misleading tenor of the advertising, the Council found, when it took up the consideration of Collene, discrepancies between facts and claims.

The first point is that of composition. The Collene Laboratories claimed 0.05 per cent. colloidal silver while the Council's examination showed that, in effect, the silver content of Collene was not colloidal but ionic.

Naturally this fact—aside from its bearing on the Council's requirement that a correct declaration of composition must be made—brought up two points of importance: (1) the part of the antiseptic power of Collene that is due to ionic silver and (2) the plausibility of the claim for "non-toxic effect" made in the face of Collene's ionic silver content. Certainly the ionic silver content indicates that the antiseptic effect of Collene is of similiar origin to that of silver nitrate and not to its alleged colloidal nature. In view also of the ionic silver present, the nontoxic effects are inherently improbable.

Instead of being "acid free," Collene has a slight acidity (a P_H of 5.2) which may be responsible in some measure for its irritant effect on sensitive tissues.

The claims for penetration of 3/16 of an inch were based on experiments made on agar and the results were applied to the human tissues. These claims were later retracted by the company.

These findings of the Council were sent to the Collene Laboratories, Inc., and it asked time for the reconsideration

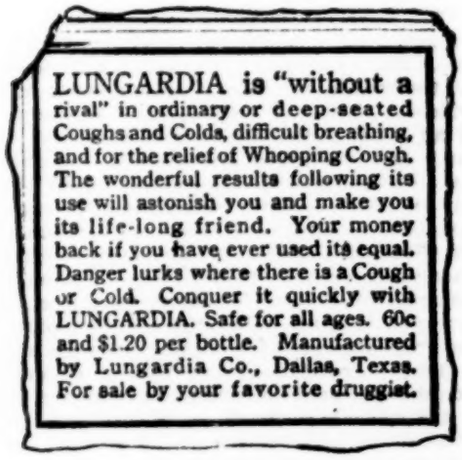
of its claims. After a lapse of more than six months, the company offered a new report. This report presented no specific evidence on the questioned points; the letters sent from physicians were irrelevant or at best failed to indicate that any "rigidly controlled experiments" such as the Council had said were necessary had been performed. A few revisions, such as abandoning the penetration claim, were made, but on the whole they were not comprehensive enough, since the fundamental contentions in the Council's report were left untouched.

The Council declared Collene not acceptable for New and Nonofficial Remedies (1) because its composition is not correctly declared and (2) because of the extravagant and misleading tenor of the advertising.

MORE MISBRANDED NOSTRUMS

Abstracts of Recent Notices of Judgment Issued by the Bureau of Chemistry of the United States Department of Agriculture

Lungardia.—The Lungardia Co. of Dallas, Texas, shipped in 1919 a quantity of "Lungardia," which was misbranded. The federal chemists reported that the product consisted essentially of kerosene oil, turpentine oil, cassia oil, clove oil, extract from a laxative plant drug, sugar, gum, alcohol and water. The stuff was declared misbranded, first, because while it contained alcohol, the label failed to declare this fact and, second, because the claims made for it were false and fraudulent. The stuff was labeled as a real guardian against


LUNGARDIA is "without a rival" in ordinary or deep-seated Coughs and Colds, difficult breathing, and for the relief of Whooping Cough. The wonderful results following its use will astonish you and make you its life-long friend. Your money back if you have ever used its equal. Danger lurks where there is a Cough or Cold. Conquer it quickly with LUNGARDIA. Safe for all ages. 60c and $1.20 per bottle. Manufactured by Lungardia Co., Dallas, Texas. For sale by your favorite druggist.

pneumonia and consumption and as "The Most Wonderful Remedy for Sore Throat, Croup and Diphtheria." In September, 1921, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed. —[*Notice of Judgment No. 10330; issued July 8, 1922.*]

Garren's Blood Purifier and Tonic.—In February and March, 1921, the Garren Medicine Co. and the Asheville Medicine Co., shipped from Hendersonville, N. C., to Richmond, Va., a quantity of this product that was misbranded. The federal chemists reported that analysis showed the product to consist essentially of alcohol, glycerin, sodium benzoate and water with extracts of plant drugs, including golden seal. The preparation was falsely and fraudulently represented as a blood purifier and a remedy for indigestion, dyspepsia, nervousness, pimples, tumors, ringworm, syphilis, etc. In October, 1921, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed. —[*Notice of Judgment No. 10496; issued Sept. 15, 1922.*]

Deer Lick Springs Water.—A quantity of this product, shipped in December, 1920, from California to New York was declared misbranded. According to the label it was bottled by the California Medicinal Springs Company of San Francisco. The federal chemists reported that analysis showed the water to contain mineral matter consisting chiefly of chlorids of sodium, magnesium, and calcium, sulphate and bicarbonate of calcium, and sulphid of sodium. The water was labeled as "A Valuable Aid to Physicians in the Treatment of Diabetes, Cystitis, Bright's Disease, Acne, Eczema, Rheumatism" and as "An Internal Antiseptic." These claims were declared false and fraudulent, as the water "did not contain any ingredient or combination of ingredients capable of producing the effects claimed." In March, 1922, the California Medicinal Springs Company of San Francisco, having admitted the allegations of the libel, judgment of condemnation and forfeiture was entered and the court ordered that the product be released to the company on payment of the costs of the proceedings and the execution of a bond for $250, conditioned in part that the water be relabeled under the supervision of the Department of Agriculture.—[*Notice of Judgment No. 10345; issued July 8, 1922.*]

Lee's Hazel Antiseptic Cones.—The Hazel Hygienic Co., Denver, Colo., shipped in August, 1921, and April, 1922, a quantity of "Lee's Hazel Antiseptic Cones" that were misbranded. The federal chemists reported that these "cones" were perfumed suppositories composed of boric acid, sodium salicylate, a trace of zinc salt and cacao butter. The preparation was falsely and fraudulently recommended as an effective treatment for "Female Disorders. . . . Inflammation of the Genital Organs and the various disorders of the Vagina and Uterus." They were also, by inference, recommended as effective for the cure of uterine displacements and painful menstruation. In June, 1922, judgment of condemnation and forfeiture was entered and the court ordered that the product be destroyed.—[*Notice of Judgment No. 10617; issued Nov. 8, 1922.*]

Correspondence

"ARE MITOCHONDRIA IDENTICAL WITH BACTERIA?"

To the Editor:—In the editorial in The Journal, November 25, entitled "Are Mitochondria Identical with Bacteria?" no mention was made of the evidence I have brought forward in the solution of this problem in the *American Journal of Anatomy.* Under separate cover I am sending reprints. I think you will appreciate from these articles that I have opened up this problem with new lines of evidence.

Ivan E. Wallin, Boulder, Colo.

[Comment.—The editorial "Are Mitochondria Identical with Bacteria?" elicited correspondence indicative of considerable difference of opinion and conflicts of judgment on the major thesis involved. Basing an opinion on the latest conclusions of Cowdry and Olitsky (Differences Between Mitochondria and Bacteria, *J. Exper. Med.* **36**:521 [Nov.] 1921), the editorial emphasized their belief that the theory of "symbiotes"—the conception that mitochondria are symbiotic micro-organisms—remains without convincing support. The evidence relied on in reaching this conclusion is somewhat indirect in character, and involves marked differences in the histologic staining of the two types of structures, as well as the absence, in mitochondria, of certain structural characters regarded as peculiar to bacteria.

Unfortunately, no reference was made to the extensive studies of our correspondent (Wallin, I. E.: On the Nature of Mitochondria, I, Observations on Mitochondria Staining Methods Applied to Bacteria; II, Reactions of Bacteria to Chemical Treatment, *Am. J. Anat.* **30**:203 [March] 1922; On the Nature of Mitochondria, III, The Demonstration of Mitochondria by Bacteriological Methods; IV, A Comparative Study of the Morphogenesis of Root-Nodule Bacteria and Chloroplasts, ibid. **30**:451 [July] 1922). His observations, conducted in the Department of Anatomy and the Henry S. Denison Research Laboratories at the University of Colorado, lead him to assert that the results obtained in subjecting bacteria to mitochondrial staining methods and

to the chemicals that have been utilized to determine the chemical nature of mitochondria appear to demonstrate that these methods are not specific for mitochondria, but have a similar reaction on bacteria. To the degree, he asserts, that these staining methods and chemical reactions are not specific, bacteria and mitochondria have a similar chemical constitution.

The fragility of mitochondria also has been made the basis for the contention that they cannot be micro-organisms. Wallin asserts, however, that bacteria and many other living forms are far more "fragile" than is generally alleged, and that bacteria are by no means as stable in form as is sometimes insisted. Instead of agreeing to "incontestable differences," Wallin meets the criticism of the previous failures to grow mitochondria in culture mediums by the statement that "while it must be admitted that a demonstration of mitochondria growing as independent organisms in a culture medium would be absolute proof of their organized or bacterial nature, the lack of such a demonstration is not proof that they are cytoplasmic organs and not organisms."

The details of Wallin's experiments cannot be cited here. In conclusion he asserts:

> In a "balance sheet" of favorable and unfavorable evidence in behalf of a bacterial nature of mitochondria, it appears to the author that the "unfavorable" side of the "sheet" lacks entries. After careful analysis, the author is convinced that no property of mitochondria has been recorded in the literature that is not equally applicable to bacteria.
>
> From the evidence that has been recorded in these studies, together with the evidence that may be found in mitochondrial literature, the author can arrive at no other conclusion than that mitochondria are symbiotic bacteria in the cytoplasm of the cells of all higher organisms whose symbiotic existence had its inception at the dawn of phylogenetic evolution. The conception embodied in this conclusion presupposes that the establishment of new symbiotic complexes is coexistent with the development of new species.

It should be pointed out here that another correspondent, Dr. S. B. Wolbach of the Medical School of Harvard University (THE JOURNAL, Dec. 9, 1922, p. 2022), although objecting to the implication that any expert would confuse mitochondria with *Rickettsia*, does not hesitate to imply his dissent from the theory of symbiotes. At any rate, he ventures the statement that "it is gratifying to have grotesque conceptions in biology neatly disposed of." On the other hand, one reads Wallin's reminder that "the practically universal occurrence of mitochondria in plant and animal cells points to a fundamental property of these structures. Their nature remains as much a puzzle today as when they were first discovered."—ED.]

THE PREPARATION OF STAINING SOLUTIONS

To the Editor:—In the textbooks dealing with microscopy and with bacteriology, as well as in the periodical literature dealing with these subjects, there are two general types of stain formulas. In one type of formula so much dry stain in weight per given volume of solution is called for; in the other type, so many cubic centimeters of a saturated solution of stain. It will be readily seen that the same staining formula could be prepared by the two methods, provided the solubility of the dry stain and its actual dye content were known. If all batches of dry stain contained the same amount of actual dye, either sort of formula would be perfectly satisfactory.

Unfortunately, however, different lots of any stain vary greatly in the amount of inert material they contain. This is true even in regard to different batches of Grübler stains, and it is especially true now when there are so many different brands of stains on the market. An investigation of certain methylene blues, for example, showed a Grübler sample examined to contain 57 per cent. of actual dye, and a Merck sample 55 per cent., while five different American samples varied from 69 to 88 per cent. It seems, in general, desirable that the color strength should be as high as reasonably possible, and it must be particularly pointed out that the sample containing 88 per cent. of dye proved one of the two very best in a long series of methylene blues examined. It is obvious, however, that a staining formula calling for so many grams of Grübler methylene blue will be more concentrated if made up with one of these American stains. Considering how these stains vary in actual dye strength, much more nearly constant formulas can be obtained, provided they are prepared on the basis of a definite volume of a saturated solution. Although there are undoubtedly some differences in the amount of actual dye that goes into solution in the case of different brands of stains, nevertheless the results are much more constant in this case than when the formulas are prepared on the basis of weight of dry dye. For this reason, biologists publishing stain formulas are urged to cooperate with the committee in putting the formulas on the basis of so many cubic centimers of saturated solution. The saturated solution may be either aqueous or alcoholic, according to the needs of the individual case. Objections are sometimes made to this type of formula in that it is difficult to prepare without waste when the solubility of a stain is not known. This is not a valid objection, however, because a saturated solution of any stain can always be kept on hand with an excess of undissolved material at the bottom of the bottle, more water or alcohol being added from time to time as more stock solution is needed in preparing staining solutions. This type of formula, therefore, has so many advantages that its use is recommended in all possible cases.

H. J. CONN, Geneva, N. Y.
Chairman, Commission on the Standardization of Biological Stains.

VOLUNTARY CONTROL OF THE HEART RATE THROUGH RESPIRATION

To the Editor:—The editorial comment on voluntary acceleration of the heart (THE JOURNAL, Oct. 21, 1922, p. 1432) brought to my mind the fact that, invariably in my experience, one can voluntarily control the rate of the heart by so simple a means as the respiration. I have proved this relation on myself as well as on patients, including the tuberculous, the thyrotoxic and the diabetic. It is reasonable to state that the heart, during the demonstration, must be uninfluenced by drugs such as morphin, digitalis, atropin, strychnin, caffein, epinephrin and quinidin.

Deep, slow respirations cause a slowing of the pulse; rapid, shallow breathing, an increase in the rate. Holding the breath after maximum inspiration produces a slowing of the pulse rate of ten or more beats each minute. A corresponding increase in rate follows holding the breath after maximum expiration. If, however, the breath is held for long, the rate becomes rapid and apparently irregular in every case, whether at the end of expiration or of inspiration.

Keeping in mind the statement of the editorial that "when arterial tension falls, the pulse rate is accelerated; with rise of blood pressure, the pulse rate decreases," one should read the chapters of Macleod (Physiology and Biochemistry in Modern Medicine, St. Louis, C. V. Mosby Company, 1922), on respiration, in which he shows conclusively that the mechanism of respiration is the important causal factor in so-called voluntary blood pressure changes. Also, according to Mackenzie (Diseases of the Heart, Oxford Medical Publications) in certain cases, the reflex stimulation of the vagus will produce an alteration of the heart's rate, most striking illustrations being found after slow or rapid deep respirations and after swallowing. These irregularities are classified under sinus arrythmias in Chapter XVIII, and are found especially in patients in whom the vagus is more excitable. He also refers to the increase in diastole, shown in cardiographic tracings, following deep inspiration.

According to Macleod, the blood pressure is affected by the alternating changes in intrapleural (negative or suction)

pressure and intrapulmonic pressure, affecting directly all the thin walled structures in the thorax, including the walls of the blood vessels and the heart, especially the auricles. Full expansion of the thorax results in increased intrapleural pressure; decreased intrapulmonary pressure, with dilatation of the heart chambers and increase in blood volume in heart and pulmonary vessels, with secondary rise in blood pressure. The entirely opposite picture is seen following complete contraction of the thorax: decreased intrapleural pressure, increased intrapulmonary pressure, contraction of the heart walls and pulmonary vessels, decrease in blood volume in the heart, and a lowering of blood pressure.

The mechanism of respiration, therefore, seems the logical factor, rather than Taylor's nerve stimulation theory, in explaining the effect of volition on blood pressure and pulse rate changes.

C. W. LUEDERS, M.D., Philadelphia.

"ROENTGEN RAYS AND STERILITY"

To the Editor:—I wish to call attention to an editorial comment with this title in THE JOURNAL, Nov. 11, 1922, p. 1692. I am familiar with Dr. Hooker's work. It is admirable so far as it goes. But this comment is likely to be misleading, and may tempt some physician to use the roentgen ray for sterilization purposes.

Recently I have seen the work along similar lines of Prof. C. C. Little, formerly of the Carnegie Institution, and now of the University of Maine. He gave mice one fifth of an erythemal dose on five successive days and watched the results to the fifth generation. The first generation were apparently normal; but with the second and continuing down to the fifth, various anomalies began to appear, such as blindness in one eye, and deformities of the ears, jaws and feet. No report of this work has as yet been published, I believe, but I hope that a report of it may soon appear.

If sterilization is desired or necessary, there are methods more effective and safe than the use of the roentgen ray.

LYDIA ALLEN DEVILBISS, M.D., New York.

"MERCUROSAL IN THE TREATMENT OF SYPHILIS"

To the Editor:—I was intensely interested in the careful and scientific study of Drs. Cole, Driver and Hutton on mercurosal in the treatment of syphilis (THE JOURNAL, Nov. 25, 1922, p. 1821). Their conclusions, based on thirty-eight carefully watched cases, are beyond much comment. However, certain facts that give rise to some discrepancies, in the opinion I have formed about mercurosal, should be brought out carefully. I have been experimenting with mercurosal for more than four years. The work of Dr. Cole and his associates does not make a distinction of the stages of the disease under treatment. If I may judge from their scant statements, most of their cases were either primary or secondary. Taking, for example, those cases that did not respond favorably to the treatment, I find that the great majority were in the primary and practically all the remaining in the secondary stage, with florid skin and mucous membrane manifestations. In my investigations, although arsphenamin was used conjointly with mercurosal, still the superiority of this treatment to a mixed treatment with any other mercurical was clearly demonstrated in my case records. Dr. Cole and his associates, using mercurosal alone in thirty-eight cases, obtained an average total of 60 per cent. improvement, which, in view of the number of primary and secondary infections among their cases, is very much in agreement with my views concerning mercurosal. In regard to the effect of the drug on the vein, these authors state that in four of their twenty-three cases treated intravenously, a sclerosis of the vein due to the injection was noted. I have administered more than 2,000 intravenous injections, and by going carefully over my records I have not found more than five instances in which sclerosis of the vein was not due to some other error in the technic, mainly puncturing the vein through both walls and thus infiltrating it with the drug. In conclusion, I must state again that for the time being we should avail ourselves of the distinctive advantages offered by this new synthetic mercurial, whose solubility in water, together with its low toxicity and high efficiency, leaves nothing to be desired when compared with the old list of mercurials in common use.

L. G. HADJOPOULOS, M.D., New York.

"BATTERY BURNS"

To the Editor:—Dr. Gradle (THE JOURNAL, November 25, p. 1819) states that "a storage battery consists of an acid-proof cell, containing alternate plates of lead and zinc filled with dilute sulphuric acid." Both sets of plates are lead, pasted with lead oxids. This is only a slight inaccuracy, but it mars an otherwise interesting paper.

C. D. MARTINETTI, M.D., Orange, N. J.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

TOXIN-ANTITOXIN—CONTRAINDICATIONS

To the Editor:—In giving toxin-antitoxin, suppose, for the sake of example, a child has received two injections, but, when the third is due, there is some contraindication, such as fever—what then? How is one to proceed? When may or should the third and last injection be given after the child is back to normal health? What would happen if an interval of two weeks instead of one week were observed in giving toxin-antitoxin. Please do not publish my name.

———, M.D., Missouri.

ANSWER.—Under the circumstances mentioned, it would probably be wise to defer further injections until the child has recovered. Immunity may follow two injections, and if a Schick test after three months is positive, another series of injections can be administered. In a series of observations related by Park (THE JOURNAL, Nov. 4, 1922, p. 1585), of persons who gave positive Schick reactions, 80 per cent. of those who received three injections of toxin-antitoxin became immune, while immunity developed in about 70 per cent. of those receiving two injections, and in about 50 per cent. of those receiving a single injection.

Since most of the observations have been made in series of cases in which the toxin-antitoxin injections were administered at intervals of a week, it is impossible to say just what would occur if the intervals should be prolonged to two weeks. In any case, it would not be wise to repeat the injection until the reaction from the former dose has subsided.

ABSORBINE, JR.

To the Editor:—Will you please give me the formula of Absorbine, Jr., a commonly advertised and used patent rubbing compound, which has been brought to my attention by quite a few of my patients. Would like to know just what it is.

GEORGE S. KING, M.D., Bay Shore, N. Y.

ANSWER.—This liniment was dealt with in the Propaganda department of THE JOURNAL, Oct. 25, 1913, and the matter has been reprinted in "Nostrums and Quackery," Vol. 2. It was stated at the time that a product almost identical in physical appearance could be made from the following formula:

Oil of wormwood	1 dram
Oil of sassafras	16 minims
Menthol	15 grains
Acetone, sufficient to make	11 drams

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

ALABAMA: Montgomery, Jan. 9. Chairman, Dr. Samuel W. Welch, Montgomery.

ARIZONA: Phoenix, Jan. 2. Sec., Dr. Ancil Martin, 207 Goodrich Bldg., Phoenix.

COLORADO: Denver, Jan. 2. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

DISTRICT OF COLUMBIA: Washington, Jan. 9. Sec., Dr. Edgar P. Copeland, Stoneleigh Court, Washington.

HAWAII: Honolulu, Jan. 8. Sec., Dr. G. C. Milnor, 401 Beretania St., Honolulu.

ILLINOIS: Chicago, Jan. 9-11. Supt. of Registration, Mr. V. C. Michels, Springfield.

INDIANA: Indianapolis, Jan. 9. Sec., Dr. W. T. Gott, Crawfordsville.

MINNESOTA: Minneapolis, Jan. 2-4. Sec., Dr. Thomas S. McDavitt, 539 Lowry Bldg., St. Paul.

NATIONAL BOARD OF MEDICAL EXAMINERS: Written examination in Class A medical schools. Part I and II, February 12-14 and February 15-16. Sec., Dr. John S. Rodman, 1310 Medical Arts Bldg., Philadelphia. Application for the February examination must be sent in by January 1.

NEW MEXICO: Santa Fe, Jan. 8-9. Sec., Dr. R. E. McBride, Las Cruces.

NORTH DAKOTA: Grand Forks, Jan. 1. Sec., Dr. G. M. Williamson, 860 Belmont Ave., Grand Forks.

OKLAHOMA: Oklahoma City, Jan. 9-10. Sec., Dr. J. M. Byrum, Shawnee.

PENNSYLVANIA: Philadelphia, Jan. 30-Feb. 3. Sec., Mr. C. D. Koch, Professional Credentials Bureau, 422 Perry Bldg., Philadelphia.

RHODE ISLAND: Providence, Jan. 4-5. Sec., Dr. Byron U. Richards, State House, Providence.

SOUTH DAKOTA: Pierre, Jan. 16. Director, Dr. H. R. Kenaston, Bonesteel.

WEST VIRGINIA: Charleston, Jan. 9. State Health Commissioner, Dr. W. S. Henshaw, Charleston.

WISCONSIN: Madison, Jan. 9-11. Sec., Dr. John M. Dodd, 220 E. Second St., Ashland.

Kansas October Examination

Dr. A. S. Ross, secretary, Kansas State Board of Medical Registration and Examination, reports the written examination held at Topeka, October 10-11, 1922. The examination covered 10 subjects and included 100 questions. An average of 75 per cent. was required to pass. Four candidates were examined, all of whom passed. Eleven candidates were licensed by reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Rush Medical College		(1922)	88
University of Kansas		(1922)	87.2
Tufts College Medical School		(1921)	86
Jefferson Medical College		(1922)	78.4

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Chicago Medical School		(1921)	Illinois
College of Physicians and Surgeons, Chicago		(1899)	Iowa
Rush Medical College		(1881), (1922)	Illinois
University of Maryland		(1907)	Maryland
Barnes Medical College		(1910)	Illinois
St. Louis College of Physicians and Surgeons		(1921)	Colorado
St. Louis University School of Medicine		(1920)	Missouri
University of Nebraska		(1919), (1921)	Nebraska
Jefferson Medical College		(1921)	Missouri

Wisconsin June Examination

Dr. John M. Dodd, secretary, Wisconsin State Board of Medical Examiners, reports the oral, written and practical examination held at Milwaukee, June 27-29, 1922. The examination covered 19 subjects and included 100 questions. An average of 75 per cent. was required to pass. Of the 48 candidates who took the physicians' and surgeons' examination, 47, including 1 osteopath, passed, and 1 candidate failed. Seventeen candidates were licensed by reciprocity. Three candidates were licensed on government credentials. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Illinois Medical College		(1899) 77, (1900)	84
Loyola University		(1917)	83
Northwestern University		(1911) 83, (1922)*	85
Rush Medical College		(1922) 84,* 86,* 86,*	89, 90*
Tufts College Medical School		(1910)	87
St. Louis University School of Medicine		(1922)	84, 85
University of Cincinnati		(1921)	85
Western Reserve University		(1921)	88
Jefferson Medical College		(1921) 83, (1922)	86
University of Pennsylvania		(1921) 84, (1922) 83,	83, 90
Woman's Medical College of Pennsylvania		(1920)	87
University of Texas		(1922)	87
Marquette University		(1920) 86, (1922) 90, (1922)* 83,	83, 83, 84, 84, 85, 85, 85, 86, 86, 86, 87, 87, 87, 87, 88, 88, 89
University of Germany		(1920)†	79
University of Budapest		(1921)†	86
University of Naples		(1920)†	77
Osteopath			88

College	FAILED	Year Grad.	
St. Louis College of Physicians and Surgeons		(1920)	74

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Northwestern University		(1918)	Illinois
Rush Medical College		(1916), (1921, 2), (1922)	Illinois
University of Illinois		(1919), (1922, 2)	Illinois
University of Louisville		(1905)	Kansas
Harvard University		(1920)	Missouri
Detroit College of Medicine and Surgery		(1920)	Michigan
University of Michigan Medical School		(1921)	Michigan
University of Minnesota		(1920)	Minnesota
University of Oklahoma		(1920)	Oklahoma
Meharry Medical College		(1903)	Arkansas
Marquette University		(1921)	Missouri
Milwaukee Medical College		(1908)	Minnesota

College	ENDORSEMENT OF CREDENTIALS	Year Grad.	Endorsement with
Loyola University		(1916)	U. S. Army
University of Illinois		(1917)	U. S. Navy
University of Minnesota		(1917)	U. S. Army

* These candidates have finished the medical course and received the M.B. degree, and will obtain the M.D. degree after they have completed a year's internship in a hospital.

† Graduation not verified.

Book Notices

THE PROPAGANDA FOR REFORM IN PROPRIETARY MEDICINES, Vol. 2, 1922. Containing Reports of the Council on Pharmacy and Chemistry and contributions from the A. M. A. Chemical Laboratory and from The Journal of the American Medical Association. Cloth. Price, $2. Pp. 603, with illustrations. Chicago: American Medical Association, 1922.

The first volume of "The Propaganda for Reform in Proprietary Medicines" ran through nine editions, and recorded the efforts which the American Medical Association had made through its Council on Pharmacy and Chemistry, and its Chemical Laboratory against fraudulent and unscientific proprietary mixtures and toward a more rational use of drugs. The material of this volume covered a period prior to 1917.

The present volume begins, appropriately, with the resolution endorsing the work of the Council on Pharmacy and Chemistry presented and signed by all the members of the House of Delegates in attendance at the San Francisco session. It deals with the work that was done from January, 1917, to April, 1922, inclusive. Like the previous volume, this one is divided into four parts:

PART I: Reports of the Council on Pharmacy and Chemistry. This section presents the principles and rules which govern the Council in the examination of medicaments, and contains articles and reports bearing on the work of the Council as well as the most important reports of the Council from 1917 to April, 1922, inclusive.

PART II: Reports of the A. M. A. Chemical Laboratory. This, besides presenting the aims and objects of the Association's Chemical Laboratory, also outlines some of the laboratory's work of special interest to physicians.

PART III: Contributions from THE JOURNAL—Proprietary Products. This contains articles which have appeared in THE JOURNAL on proprietary preparations and their methods of exploitation.

PART IV: Contributions from THE JOURNAL—Miscellany. In this section are articles dealing with matters of interest to the medical profession but not coming strictly under the classification of proprietary medicinal preparations.

A comparison of the material that has appeared in Volume 1 with what appears in this volume reveals the changing conditions in the proprietary medicine field. Many of the reports in the first volume brought out the fact that medicinal preparations were at that time foisted on the profession with false claims of composition; reports of this character are less conspicuous in the present volume. Many of the reports in Volume 2 deal with unwarranted therapeutic claims, especially those advanced for animal organ preparations, serums,

vaccines, preparations for intravenous medication, etc. The present volume will also be found of interest in its portrayal of the changed conditions in proprietary medicines brought about by the World War.

The index is combined with a bibliography. It includes references not only to articles in the book but also (*a*) to articles which appeared in Volume 1; (*b*) to articles on the same general subject in THE JOURNAL, and (*c*) to articles appearing in the annual reports of the Council on Pharmacy and Chemistry and of the A. M. A. Chemical Laboratory, but not printed in either volume of the Propaganda for Reform in Proprietary Medicines.

The book is a valuable work of reference for the physician when importuned to use a new drug or when reading medical publications which refer to apparently new drug preparations. A supplement keeps the matter up to date. The book will be welcomed by those who aim to support the efforts of the American Medical Association toward the rational use of drugs and who wish to keep informed about this work so that they may give intelligent and effective support. Finally, much of the matter is interesting and entertaining reading. The review of the passing fads and fancies in drug therapy is especially illuminating. Reports, such as "Lactopeptine," "The Hypophosphite Fallacy," "The Therapeutic Value of the Glycerophosphates," "Aspirin" and "The Claimed Galactagogue Effects of Nutrolactis and Goat's Rue not Substantiated," will bring a realization of the changing estimate of drugs which have been brought about as a result of the American Medical Association's "Propaganda for Reform in Proprietary Medicines."

GRUNDZÜGE DER ELEKTRODIAGNOSTIK UND ELEKTROTHERAPIE FÜR PRAKTISCHE AERZTE. Von Dr. Max Kahane, Spezialarzt für physikalische Therapie in Wien. Paper. Price, 162 marks. Pp. 236, with 27 illustrations. Berlin: Urban & Schwarzenberg, 1922.

As this book aims to furnish the general practitioner with a reliable guide for electrodiagnosis and electrotherapy, the enumeration of the physical and physiologic technical details is reduced to a minimum. Special stress is laid on electrodiagnosis. The author uses the term galvanopalpation for the application of the galvanic current in the diagnosis of internal diseases. While he is strongly in favor of the use of electricity by the general practitioner, he demands that the physician should make himself thoroughly familiar with all the electrical appliances employed before using them on the patient. The two main indications for electrotherapy are defined as the reducing of pathologically raised sensibility, and the raising of pathologically reduced sensibility. The psychic attitude of patients toward electrotherapy is also considered; as electrophils are said to be as numerous as electrophobes, the physician is obliged to dampen extravagant hopes as well as to combat skepticism. The bodily structures are said to vary in their conductivity according to the part involved and to the physical condition. The observation that hyperthyroidism brings about a decrease in resistance is important from both the diagnostic and the therapeutic point of view. In considering the influence of electricity on motor nerves and the muscles, the author describes Dubois-Reymond's and Pflueger's laws, and explains their importance with regard to clonic, tonic and tetanic contractions. Several chapters deal with the action of electricity on the sensitive nerves in general, the specialized cerebral sensory nerves, the circulation, the temperature and metabolism. The physicochemical action of electricity and the various electrical apparatus and electrodes are described. Galvanopalpation was introduced by the author on the ground that certain deep seated disorders will manifest themselves on the surface of the body by phenomena of reaction to the galvanic current. These phenomena are divided into two categories, the reaction of subjective sensations and the reaction of the superficial blood vessels. The details of this method as to application and diagnostic grouping must be studied in detail; judgment must be suspended until other observers have employed the author's method and controlled his deductions. The diagnostic part of the book concludes with a chapter on the application of the faradic and the galvanic current as a means of diagnosing the diseases of the nervous system and the muscles. The differential diagnosis between complete and partial degeneration is explained. The prognosis is also included in this discussion. The therapeutic part takes up the forms of electricity to be employed, and gives general rules for the administration of the faradic and galvanic currents. The sinusoidal current and hydro-electric baths are described, together with the therapeutic use of high frequency currents and magnetotherapy. The special indications of electrotherapy are discussed according to the organs to be treated. Galvanopalpation is still sub judice, but the remainder of this textbook is a complete and satisfactory guide for the administration of electrotherapy.

NOTES ON DISEASES TREATED BY MEDICAL GYMNASTICS AND MASSAGE. By Doctor J. Arvedson. Translated and Edited by Mina L. Dobbie, M.D., B.Ch., Medical Officer, Chelsea College of Physical Education. Cloth. Price, $2.50. Pp. 280. Philadelphia: P. Blakiston's Sons & Co., 1921.

The discussions of symptomatology and pathology that open the chapters in this book are too simple to interest physicians, and too brief to inform nurses. Vitamins, for example, are not included among the food substances required by the body, although protein, carbohydrate, fats, salts and water are mentioned. In the chapter on mental disease, we read, "Sometimes mental trouble is associated with arrested menstruation, and in that case one would give movements taking blood to the pelvis, to bring back menstruation." Statements involving so much understanding, as this one does, do not appear to advantage when scantily surrounded by associated ideas. The gymnastic treatment of a case of aneurysm of the aorta, the author says, must be carried out with the greatest caution, and only at the express order of a physician. Why not omit that subject entirely? There is no definite indication for gymnastic treatment in thrombosis, laryngitis, whooping cough, and other subjects included. There is more often a definite contraindication. The book gives the impression that there are few ailments not benefited by gymnastics or massage. An example of caution is found when the author italicizes the words, "Gymnastic treatment must not be given for gastric ulcer."

PRÉCIS D'HISTOLOGIE PHYSIOLOGIQUE. Par A. Policard, Professeur d'Histologie à la Faculté de Médecine de l'Université de Lyon. Paper. Pp. 1117, with 465 illustrations. Paris: Octave Doin, 1922.

This is one of those book the French call by the deceiving name of "précis," which may vary all the way up from a little quiz-book or mere aide-mémoire to a veritable treatise. Policard's work, one of the numerous Testut collection, differs from the average octavo textbook only in the smaller format and type. It contains the lessons on histology given by the author to first and second year medical students at Lyons, where he teaches. As he is careful to point out, the book is intended essentially for students and physicians, and not for physiologists or histologists. It is written in the lucid style apparently inborn in the French, and therefore fulfils its purpose of presenting accepted data in a simple and readable form. Because of the rarity of an index in books from Latin countries, the presence of one in this book is noteworthy; while incomplete, it is a step in the right direction.

KOMPENDIUM DER TOPISCHEN GEHIRN- UND RÜCKENMARKSDIAGNOSTIK. Kurzgefasste Anleitung zur klinischen Lokalisation der Erkrankungen und Verletzungen der Nervenzentren. Von Robert Bing, Professor an der Universität Basel. Fifth edition. Paper. Price, 540 marks. Pp. 242, with 102 illustrations. Berlin: Urban & Schwarzenberg, 1922.

This useful compend has seen five editions in thirteen years. The present one contains much new material from experience gained in the war and from recent work on the basal ganglions and the cerebellum. It consists, first, of a clear exposition of those features of the anatomy and physiology of the brain and cord actually necessary for practical purposes in the topical diagnosis of lesions of these organs. There are numerous schematic illustrations in the text, often of original design; for instance, of cross-sections of the extremities, with different shading of the muscles according to their radicular and peripheral nerve supply. Then the topical diagnostic importance of symptoms, such as hemiplegia, aphasia and hemianopia, is discussed. Individual diseases are not taken up, nor are lesions of peripheral nerves

as such; but symptoms on the part of these nerves bearing upon localization of central lesions are carefully considered. The book is intended for the general practitioner rather than the specialist, but we dare say that there are few neurologists who do not need a book of this kind at their elbow.

TUBERCULOSIS. A Primer and Philosophy for Patient and Public. By McDugald McLean, B.A., B.Sc., M.D. Paper. Price, $1. Pp. 168, with 3 illustrations. New York: Journal of Outdoor Life Pub. Co., 1922.

This, as the title indicates, is a small book of cheerful and scientifically correct advice to those who find themselves infected with the bacillus of tuberculosis. Six years ago the author found himself in this class, and he has made a courageous and, we hope, successful effort to fight the infection and to regain his health. The brochure is entertainingly written, and in a cursory reading we have found his statements in accord with the best teachings. Certainly the author has read wisely on the subject. Some apt quotations are made from both modern and ancient writers. Celsus, who lived in the first century of our era, is quoted as saying: "As soon as a man finds himself spitting and hacking on arising in the morning, he should immediately take possession of a cow and go up into the mountains and live on the fruit of the cow." Proper tribute is rendered Trudeau and other pioneers in the open air treatment of tuberculosis. There is an interesting chapter on "Distinguished 'T. B's,'" containing short notes on the lives and work of such men as Trudeau, Grancher, Laënnec, Lanier, Stevenson, Schiller, Molière and Wesley. Both those who have been unfortunate enough to acquire this infection and those who have fortunately escaped it will find the reading of the book interesting, and the advice given sound.

Since the foregoing was written, we have learned of the death of this talented author. May his little volume be helpful to others.

PROCEDIMIENTOS ACTUALES DE EXPLORACION RENAL. Por el ponente oficial Doctor Manuel Barragán y Bonet. Paper. Pp. 111. Madrid: Imp. de Ministerio de Marina, 1921.

This is the official report on renal examination methods submitted to the National Medical Congress held in Madrid in 1919. The different methods are described briefly but thoroughly, with their technic, results and drawbacks. The examining methods are classified into (1) direct: examination, percussion, palpation and ballottement; (2) physical: roentgen rays, and (3) functional: urinalysis and secretion tests, Ambard's constant, cystoscopy and exploratory operations. The author explains the value and limitations of each, dwelling on the usefulness of ballottement, palpation, roentgenography; potassium iodid, experimental polyuria, experimental glycosuria and phenolsulphonephthalein tests and Ambard's method. Dr. Barragán's favorite method, however, is double ureteral catheterization combined with urinalysis as being less liable to error and showing the limitation or extension of the process to one or both kidneys. The author has generally done his task well. The printing, editing or proofreading, however, has been very carelessly done, and it seems strange, not to say funny, to find among American authors Caboty, Joung, Foung, Geraghy, Kelles, Thomas Brands Keyes, Rowostres and Rowontre. But then, French and even Spanish authors have not fared any better.

SELECTED WORKS OF THOMAS SYDENHAM, M.D. WITH A SHORT BIOGRAPHY AND EXPLANATORY NOTES. By John D. Comrie, M.A., B.Sc., M.D., Lecturer on History of Medicine and on Clinical Medicine in the University of Edinburgh. Cloth. Price, $3. Pp. 152, with illustrations. New York: William Wood & Co., 1922.

Many physicians who would be dismayed at the task of reading Sydenham's writings, even in translation, will welcome this small volume of well selected extracts. The one on gout, especially interesting, occupies about one fourth of the book. Among the other briefer articles are those on rheumatism, chorea, hysteria, venereal diseases, epidemic diseases and scarlatina. A bibliography of Sydenham's works is given. There is a biographic sketch that has the merit of being something more than a mere record of dates and events; it reveals to us Sydenham as a man, a living personality.

Medicolegal

Test of Insanity as Defense to Crime—Insane Delusions

(Kraus v. State (Neb.), 187 N. W. R. 895)

The Supreme Court of Nebraska, in reversing, for erroneous instructions, a judgment of conviction of murder, holds that the test of insanity, urged as a defense to a charge of crime, is the capacity of the accused to understand the nature of the act committed and his ability to distinguish between right and wrong with respect to it. When a person is so diseased in mind at the time the act is charged to have been committed that he is incapabale of comprehending the nature of the act and is unable to distinguish between right and wrong, he is not accountable, however insanity may be manifested, whether by insane delusion or in any other manner. In case of partial insanity, an insane delusion which raises in the mind of the accused an imagined state of facts and so corrupts his mental processes that he is incapacitated from distinguishing right from wrong with respect to the act charged is a defense, though the imagined state of facts, if real, would not have justified a sane man in doing the same act.

When there is evidence that the accused was, in committing the act charged, laboring under an insane delustion, but was sane on matters not connected with the subject of his delusion, it cannot be presumed, as a matter of law, that he is able to reason with regard to the subject matter of his delusion, as a sane man would as to actual facts conforming to the imaginings of the accused. The question of the effect of an insane delusion in incapacitating a person who is otherwise sane, as to his ability to distinguish between right and wrong, with regard to matters connected with his delusion, is always a question for the jury, and an instruction on insane delusions should call on the jury to pass on that question.

An insane delustion is a false belief, springing from a mind disordered by diseases, and may be defined entirely apart from the acts that are the result of such delusion. It is the product of a diseased mind, as distinguished from errors of judgment or imagined conditions in a healthy mind, which are brought about by processes of reasoning. It is not generated by reason or reflection, and it cannot be dispelled by them. The person afflicted has no control over it, and the images of his mind are to him facts from which he cannot escape.

Judgment for Physician Against Employer Reversed

(Moore v. Derees (N. J.), 117 Atl. R. 480)

The Supreme Court of New Jersey, in reversing a judgment that the plaintiff recovered against the defendant for services rendered to an injured employee of the latter, says that the employee sent for the plaintiff to attend him. The plaintiff found him suffering from a bad injury to one of his eyes, which needed an immediate operation. The plaintiff took charge of the case and took the man to an eye and ear infirmary, and performed the necessary operation. The plaintiff did not see the defendant until afterward, and first talked with him over the telephone. The defendant then told him to give the man every possible attention, private hospital care and the services of a private nurse; and to spare nothing. The plaintiff did not, however, secure a private room and a private nurse, because the infirmary did not have the available room. The plaintiff sought to recover $100 for the operation, $84 for twenty-eight calls, and $14 for two office calls, making a total of $198; and he obtained judgment therefor. The trial judge found that the defendant led the plaintiff to rely on him for payment of the bill. The defendant did not dispute the amount of the bill, but rested on the fact that it was a proper case for proceeding under the workmen's compensation act, so as to preserve his right to recover indemnity from his insurance carrier.

The operation, for which the charge was more than half the bill, was performed before the defendant knew anything about the accident and at the request of the injured workman.

There was nothing to take this case out of the ordinary rule that a debt will be implied from the rendering of services on request, and there was nothing to negative the indebtedness of the man to the plaintiff. Nor was there any question that the man became indebted to the plaintiff for the subsequent attendance, since the plaintiff said himself that he took charge of the case. There was no evidence that he acted on the defendant's request to provide private hospital care and a private nurse. So far as ordinary attendance was concerned, the plaintiff's obligation to render it was, under his agreement with the defendant, without consideration, since he was already under obligation to render those services under his employment by the injured man. Whether it was possible or not for the plaintiff to perform the contract for extra services might be a question. He said it was impossible. That impossibility might excuse his failure to provide the extra services; it explained his failure to contract to do so; it saved him from any action against himself for breach of contract; even if he accepted the defendant's terms, it surely could not entitle him to recover for services not rendered. In short, the debt for the subsequent attendance, as well as for the original operation, was a debt of the injured man, and the promise of the defendant to pay was a promise to pay the debt of another and within the statute of frauds; or required to be evidenced in writing.

But there was another aspect of the case, growing out of the employers' liability act of New Jersey. The provision for enforcement in the name of employees clearly negatives any right to enforcement in the name of a creditor of the employee, as was the present case, and the provision involving the limitation of the liability of the insurer to the employer is quite inconsistent with any permission to the employer to increase his liability by way of special contract or to extend the number of those who may sue on the policy. A special contract by the employer with a third party is out of harmony with the scheme of the legislation. The result is that the employer is no more free to make larger compensation than the statute provides than he is free to make less compensation. The state, through its own agencies, determines what is proper and enforces compliance in a spirit of judicial fairness. The plaintiff sought to recover by virtue of the compensation law contract without being a party to the contract or following the terms of the statutes. The court holds he could not recover under statutes by which he was not bound.

Privilege Attaches to Hospital Records—When Treated as Public Records

(Galli v. Wells (Mo.), 239 S. W. R. 894)

The St. Louis (Mo.) Court of Appeals affirms, in this personal injury case in which the plaintiff obtained a judgment, an order granting a new trial on account of certain records of the city hospital having been excluded when offered in evidence by the defendant. The court says that what was offered in evidence was the record preserved by the hospital of the plaintiff's condition and treatment made by her physicians while she was a patient at the hospital, it having been made by a junior intern at the hospital, whom the clerk of the hospital testified had charge of the patient, although the record purported on its face to be a record of the diagnosis and treatment of the patient by another physician. Ordinarily, such a record would be inadmissible because it is a privileged communication between physician and patient; but here it was conceded that the plaintiff, by taking the stand and testifying to her physical condition, and also by calling her own physician to testify on that subject, had waived the privilege given to her by the statute. The question of privilege being eliminated on account of the waiver, it remained to be determined whether the record offered in evidence came within the well-recognized exception to the hearsay rule frequently designated by the terms "public documents," or "official statements." If the record could be said to be an official public document, it was admissible under the exception to the hearsay rule, notwithstanding the person who made the record was not produced in court, and although it was not shown that it was impossible to obtain such testimony by reason of death, absence, insanity or like circumstance; for the official registers or books of a public official, which are required by law to be kept, are competent evidence to establish such facts as the law requires to be recorded therein.

By Section 5799 of the Revised Statutes of Missouri of 1919, it is provided that, in cities in which health officers or other officials are conducting effective registration of births and deaths under local ordinances, these officers shall be continued as registrars in and for the cities in question; and, under the charter and ordinances of the city of St. Louis, the hospital commissioner in charge of the city hospital came within the provisions of the statute. By Section 5812, he is required to keep a record of all persons admitted to the hospital for medical treatment, and should enter in the record the nature of the disease. In addition, Section 1820 of the ordinances required that a patient's record be kept at the hospital, which should contain a complete statement of all operations and treatments, and the condition of the patient from time to time. It was argued that the city hospital records were not open to the inspection of the public, and, although kept by public officials, were not for the benefit of the public, as the public had no interest in them, and therefore they were not public records within the exception to the hearsay rule. Ordinarily, such records are not open to the public because of the privilege statute, but, when that statute is waived, as in the present case, the records of the city hospital, a public institution, kept under requirement of the law, are like other public records, and are open to the public. In other words, the court holds that, in view of the foregoing charter provisions, ordinances and state statutes, the record offered in evidence was a public official record required by law to be kept, and was competent evidence of such facts as the law required should be recorded therein in a case in which, as here, the privilege of the statute had been waived.

Evidence with Regard to Impotence

(Bissell v. Bissell (N. J.), 117 Atl. R. 252)

The Court of Chancery of New Jersey, in decreeing an annulment of marriage for impotence, holds that nullity of marriage may not be decreed either on the uncorroborated testimony of the petitioner or on the uncorroborated admission of the defendant. But, when a defendant, as in this case, refuses to appear before physicians who are appointed inspectors to examine him to the end that they may form and express an opinion as to whether he is incapable of performing the act of generation, and has on his part any impediment to the consummation of marriage, this conduct, coupled with the other evidence in the cause, may be sufficient to warrant the conclusion that the defendant was at the time of the marriage physically and incurably impotent. After parties have cohabited for three years, and the marriage remains unconsummated, that being made to appear by the woman's remaining a virgin, the man's impotence is to be presumed, and this is called triennial cohabitation; but if they have cohabited for a less period, and other facts satisfy the court of impotence, it may be deemed established.

Society Proceedings

COMING MEETINGS

American Biochemical Society, Toronto, Canada, Dec. 27-29. Dr. Victor C. Myers, 303 East 20th Street, New York, Secretary.

American Pathological Society, Toronto, Canada, Dec. 27-29. Dr. Wade H. Brown, Rockefeller Institute for Medical Research, New York, Secretary.

American Pharmacological Society, Toronto, Canada, Dec. 27-29. Dr. E. D. Brown, University of Minnesota, Minneapolis, Secretary.

American Physiological Society, Toronto, Canada, Dec. 27-29. Dr. Chas. W. Greene, University of Missouri, Columbia, Secretary.

Federation of American Societies for Experimental Biology, Toronto, Canada, Dec. 27-29. Dr. Victor C. Myers, 303 East 20th Street, New York, Secretary.

Medical Society of the District of Columbia, Washington, Jan. 3, 1923. Dr. C. B. Conklin, Medical Science Building, Washington, Secretary.

Society of American Bacteriologists, Detroit, Dec. 27-29. Dr. A. P. Hitchens, Army Medical School, Washington, D. C., Secretary.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Diseases of Children, Chicago

November, 1922, **24**, No. 5

*D'Espine's and Allied Signs in Childhood. J. L. Morse, Boston.—p. 361.
*Clinical and Chemical Study of Butter Soup Feeding in Infants. A. Brown, A. M. Courtney and I. F. MacLachlan, Toronto.—p. 368.
*The Calcium and Phosphorus Concentration in Serum of Infants with Mild Rickets or Condition Simulating Mild Rickets. F. F. Tisdall, Toronto.—p. 382.
*Incidence of Meningitis in Early Infancy; Two Cases Due to Unusual Organisms. J. V. Cooke and H. H. Bell, St. Louis.—p. 387.
Study of Shadows in Thorax of Newly-Born. L. R. DeBuys and Ernest C. Samuel, New Orleans.—p. 397.
*Gastric Motility After Pyloric Obstruction in Infancy. B. S. Veeder, M. B. Clopton and R. W. Mills, St. Louis.—p. 404.
*Rate of Secretion of Breast Milk. C. H. Smith and K. K. Merritt, New York.—p. 413.
Intraventricular and Subdural Serum Treatment of Meningococcus Meningitis in Infancy. W. W. Howell and S. A. Cohen, Boston.—p. 427.
*Incidence of Thymic Enlargement without Symptoms in Infants and Children. R. M. Greenthal, Milwaukee.—p. 433.
*Classification and Management of Asthma in Childhood; Importance of Rabbit Hair as Cause in New York City. N. P. Larsen and S. D. Bell, New York City.—p. 441.

D'Espine's Sign.—Investigation has convinced Morse that most men have not read D'Espine's original articles and are using the term "D'Espine's sign" very loosely. The sign to which D'Espine originally called attention is a whispering sound following the spoken voice and heard over the spinous processes. No such sound is heard normally. He believed this to be the earliest sign of enlargement of the tracheobronchial lymph nodes. He also believed that the bronchial character of the spoken voice did not normally extend below the seventh cervical spine and that extension of the bronchial sound below this point was evidence of an enlargement of the tracheobronchial lymph nodes. He considered that the extension of the bronchial voice below the seventh cervical spine was always a later sign than the addition of the whispering sound to the spoken voice and that it meant a more advanced process. He paid little attention to the character of the whispered voice (meaning by this a whisper, not the whispering sound heard after the spoken voice) and believed that extension of the bronchial respiratory sound and of dulness on percussion below the seventh cervical spine were still later manifestations and that they signified much more marked changes. Incidentally, he warns against mistaking an unusually loud or deep voice for bronchophony, and states that sometimes it is impossible to determine anything from the voice itself, because of its peculiar character or the thinness of the chest wall. One hundred and eighteen patients between the ages of 2 and 14 years were studied by Morse and he reports his findings in detail. In eighty-eight cases, or nearly 75 per cent., there was no whispered sound after the spoken voice; in twenty-four cases it was heard through the seventh cervical spine, and in six cases below this point as well. It seems evident, therefore, that a whispered sound after the spoken voice is not the usual condition and is probably abnormal.

Butter-Soup Feeding in Infants.—The original mixture proposed by Czerny and Kleinschmidt calls for the following ingredients: butter (melted), 7 gm.; flour, 7 gm.; sugar, 5 gm.; water, 100 c.c. The mixture is diluted with milk in the proportion of two-thirds butter-flour to one-third whole milk for children weighing less than 6½ pounds, and three-fifths butter-soup to two-fifths milk for children in a better state of nutrition. Such a food gives from seventy-five to eighty calories per pound. The following simplified method has been adopted and used exclusively by Brown, Courtney and MacLachlan: butter, 7¼ level teaspoonfuls; granulated sugar, 5¼ level teaspoonfuls; flour, 14¾ level teaspoonfuls; water, 17½ ounces. The caloric value of this butter-soup (without addition of milk) is approximately twenty-eight calories to the ounce. For an infant weighing 7 pounds, the following feeding would thus be adopted: butter-soup, 14 ounces; whole milk, 7 ounces; 7 feedings. The caloric value of this mixture is approximately twenty-four calories to the ounce. When the stools tended to be loose, the sugar was omitted and from ½ to 1 ounce of casein flour was added in order to overcome the excessive fermentation. Little difficulty has been experienced with the preparation of this food in the home. Details of observations are given. The authors are convinced that undoubtedly butter-flour mixture is a valuable addition to our resources in the feeding of premature, small and undernourished infants who are not suffering from any acute digestive disturbance.

Calcium and Phosphorus in Serum of Rickets Patients.—The calcium and inorganic phosphorus concentration in the serum of a number of infants with craniotabes and slight enlargement of the costochondral junctions, as determined by Tisdall, averaged 8.8 mg. calcium and 6.1 mg. phosphorus per hundred cubic centimeters of serum. The average concentration of the calcium and inorganic phosphorus in the serum of a number of infants with signs of active tetany in addition was 6.1 mg. calcium and 5.9 mg. phosphorus per hundred cubic centimeters of serum. The question is raised whether the bone changes observed (craniotabes and enlargement of the costochondral junctions) were not more of an osteoporotic than true rickets.

Incidence of Meningitis in Infancy.—The incidence of acute meningitis in infants under 3 months of age is briefly reviewed by Cooke and Bell with mention of four cases due to meningococcus, two to streptococcus and two caused by pneumococcus. Two cases are described in which the organisms involved were gram-negative bacilli of the type commonly found in the intestinal tract. One of these belonged to the group of paracolon bacilli, but did not correspond exactly in fermentation reaction to other described strains, while in the second case the organism isolated was an encapsulated proteolytic nonfermenting bacillus apparently not hitherto observed. On account of the tough elastic growth on culture mediums, we have suggested the name *Bacterium elasticum* for this organism. The fact that meningeal infection with colon bacilli and allied organisms is usually unaccompanied by recognizable infection elsewhere in the body suggests that these bacteria gain entrance through the intestine. The possible relation of various factors in explaining why such infections are confined to early infancy is discussed, and reasons given for the belief that the increased permeability of the intestinal mucosa to bacteria, the absence of inherited immunity to the colon group, the imperfect power of antibody formation in young infants, and the general lowered resistance accompanying malnutrition predispose to infection by organisms of this type.

Gastric Motility After Pyloric Obstruction.—The gastric motility of eight children, all of whom had been patients with pyloric obstruction in early infancy, was studied by Veeder, Malvern and Mills and in every instance was found normal. Four of these, aged 4, 4⅓, 6 and 8 years, respectively, had been treated medically, and in four cases, children, aged 1⅓, 4, 4½ and 5 years, respectively, a pyloroplasty (Rammstedt operation) had been done. At the time of the gastric examination the children were all in a good condition of nutrition and with one exception they had developed normally after overcoming the trouble in early infancy. All belonged to the "sthenic" type of habitus, as classified by Mills.

Rate of Secretion of Breast Milk.—Smith and Merritt are convinced that nursing infants obtain the greater part of their feeding of breast milk in the first few minutes, from 40 to 60 per cent. in the first two minutes, and from 60 to 85 per cent. in the first four minutes. This holds true whether the supply is abundant, moderate or scanty. After eight minutes very few babies get any milk whatever. Only seventeen of their subjects showed any increase in weight after eight minutes; only three babies obtained milk after ten minutes. The babies who need both breasts usually get less from the second than from the first side, except when one regularly yields a better supply.

Incidence of Thymic Enlargement Without Symptoms.—In a series of 2,000 consecutive hospital admissions, thymic

enlargement was diagnosed in ninety, or 4.5 per cent. Of these ninety patients, eighty-seven gave no history or presented no symptoms of thymic involvement. Enlargement of the thymus was noted in 25.6 per cent. of all the patients who had a roentgenogram of the thorax made. Greenthal says that patients with congenital defects and malformations are more apt to have thymic enlargement than are other patients. It is possible that the mortality rate among surgical cases was lowered by preoperative thymic treatment. It would seem advisable to give thymic treatment to persons with thymic enlargement, even though they have no clinical evidence of thymic hyperplasia.

Asthma in Childhood.—Of 100 cases of asthma and chronic bronchitis analyzed by Larsen and Bell, forty-four subjects were shown to be sensitive to protein. Of the forty-four, thirty-six were positive to animal emanations and of these thirty-two were positive to rabbit hair. Sixty positive reactions were obtained. Of these forty-nine, or 81 per cent., were positive to animal emanations and thirty-two, or 54 per cent., were positive to rabbit hair. In treating the sensitive type, removal of the protein from the environment gave marked immediate relief. In treating the nonsensitive type, simple hygienic measures gave relief in slightly more than half the cases.

American Journal of Psychiatry, Baltimore

October, 1922, **2**, No. 2

*Studies in Focal Infection: Its Presence and Elimination in Functional Psychoses. N. Kopeloff and C. O. Cheney, New York.—p. 139.
*Etiology and Treatment of So-Called Functional Psychoses. H. A. Cotton.—p. 157.
Responsibility of American Psychiatric Association in Relation to Psychiatric Nursing. E. H. Cohoon, Harding, Mass.—p. 211.
Efficiency Survey of Worcester State Hospital. W. A. Bryan, Worcester, Mass.—p. 221.
Physiologic and Anatomic Approach to Classification of Mental Diseases. H. I. Gosline, Howard, R. I.—p. 235.
Internal Secretions in Their Relationship to Mental Disturbance. B. R. Tucker, Richmond, Va.—p. 259.
*Clinical Activities of Connecticut Society for Mental Hygiene. W. B. Terhune, New Haven, Conn.—p. 273.

Focal Infections Not Cause of Psychoses.—The conclusions resulting from a study made by Kopeloff and Cheney of the relation of focal infections to functional psychoses are summarized as follows: The removal of infected teeth and tonsils from twenty-seven cases showing manic depressive, dementia praecox, and psychoneurotic reactions has been followed by no more mental benefit than was shown by a comparable group of thirty-three patients from whom such supposed foci of infection were not removed. There were no recoveries or distinct improvements other than those prognosticated irrespective of focal infection. The Rehfuss method of fractional gastric analysis is not to be relied upon as a means for determining gastric infection. The bacteria found in the stomach contents by this method may be derived for the greatest part or entirely from the saliva that is swallowed.

Focal Infection May Cause Insanity.—The fact that many individuals harbor focal infections and are not insane, Cotton says, is no argument against the doctrine that focal infections can cause insanity. One may argue similarly regarding a functional psychosis. The type, specificity and severity of the infection, plus the patient's constitutional lack of resistance, determine whether or not a psychosis will develop. Such factors as heredity and psychogenesis undoubtedly play an important rôle; more, however, it is now believed, in precipitating the psychosis rather than the principal etiologic factor. The successful treatment of 1,400 cases during the last four years with only forty-two return cases now in the hospital, Cotton says, must be accepted as evidence that the work has been efficient. The fact that recoveries in the last four years average 80 per cent. of this group against an average of 37 per cent. for a period of ten years prior to 1918 should be convincing. The latter can be considered as spontaneous recoveries, and the increase of 43 per cent. is due entirely to the method of detoxication that is employed. It is imperative that every patient who is admitted to the state hospital should be subjected to a thorough diagnostic survey, and that all foci of infection should be eliminated.

Activities of Connecticut Mental Hygiene Society.—Terhune points out that the Connecticut Mental Hygiene Society combines clinical work with its other activities. Nearly 2,500 patients have been helped by this organization, 1,600 of them having been seen during the past two years. The result of this experience shows the great need of mental hygiene organizations in every county, state and community.

American Review of Tuberculosis, Baltimore

November, 1922, **6**, No. 9

Some Factors Concerned in Dissemination of Tuberculosis in Experimental Animals. S. R. Haythorn, Pittsburgh.—p. 731.
*Pneumokoniosis and Tuberculosis: Special Reference to Both Diseases in Potters. H. R. M. Landis, Philadelphia.—p. 766.
Pneumokoniosis in Stone Industry. F. L. Hoffman, Newark, N. J.—p. 772.
Studies on Relation of Mineral Dusts to Tuberculosis. II. Relatively Early Lesions Produced by Inhalation of Marble Dust and Their Influence on Pulmonary Tuberculosis. L. U. Gardner and M. Dworski, Saranac Lake, N. Y.—p. 782.
*Studies on Tuberculous Infection. IX. Influence of Inhalation of Coal Dust on Tuberculous Infection in Guinea-Pigs. H. S. Willis, Baltimore.—p. 798.
Pulmonary Aspiration of Particulate Matter. H. J. Corper and H. A. Robin, Pueblo, Colo.—p. 813.
*Pulmonary Tuberculosis Produced Experimentally by Aspiration. H. J. Corper, Denver.—p. 851.

Pneumokoniosis and Tuberculosis.—The hypothesis is advanced by Landis that silica is the most irritant of all dusts and those exposed to it in its pure form are incapacitated in from two to eight years. In other words, it will produce as much damage in this brief period as occurs after from thirty to fifty years in a pottery or in a coal mine. Instead of being a slow chronic process, silicosis is subacute and in some instances distinctly an acute process. It would, therefore, seem that lungs acutely or subacutely inflamed might readily become a fertile field for the tubercle bacillus. Landis emphasizes that no dust, not even silica, can cause tuberculosis. It may as in the case of silica, predispose the individual to the disease, but without the presence of the tubercle bacillus tuberculosis cannot develop.

Influence of Inhalation of Coal Dust on Tuberculous Infection.—Willis' observations showed that coal dust accumulates slowly in the lungs of guinea-pigs exposed repeatedly to its inhalation. It tends to become localized in the alveoli and alveolar walls, under the pleura at intervals, in the lymphoid tissue situated along the air and blood passages and at the hilum, and along the lymphatics in the adventitia of these tubes and vessels. After infection tubercle develops somewhat more abundantly in lungs of animals exposed to dust than in those of normal animals. The ratio is about as three to two. Dust cells usually can be found in and about foci of tuberculosis in lungs that have been well exposed to dusting.

Pulmonary Tuberculosis Produced by Aspiration.—The upper lobe localization of pulmonary tuberculosis, the most common type of the disease found in man, Corper says, can be reproduced in dogs (in the sense of human postural anatomy) by the instillation of suspensions of tubercle bacilli into the nose while the animal is lying in the horizontal posture (on the right or left side depending on the side on which involvement is desired) during ether anesthesia with the head slightly elevated. These experiments with tubercle bacilli verify the postural studies previously reported in animals in which India ink was used. By means of dead human tubercle bacilli, aspirated under ether anesthesia, all of the important characteristics of the disease in man may be reproduced, except progression in the true sense of the term, such as would naturally be dependent upon actual multiplication of the bacilli in the lungs. The most important of these changes, including massive tuberculous granulation tissue formation with subsequent necrosis followed by discharge into the bronchi and resulting cavity formation, fibrous pleural adhesions and intrapulmonary capillary hemorrhages are all obtained and in definite sequence, indicating that the full tissue damage initiated when the bacilli enter the lungs is not exhausted for a considerable period of time; visible cavities were found only after 139 days, while intrapulmonary capillary hemorrhage was seen regularly earlier (after forty-one days).

Annals of Otology, Rhinology and Laryngology, St. Louis

September, 1922, **31**, No. 3

Treatment and Prognosis of Carcinoma of Larynx. W. Okada, Tokyo, Japan.—p. 601.
Study of Tonal Ranges in Lesions of Middle Ear. L. W. Dean and C. C. Bunch, Iowa City, Ia.—p. 617.
Observations on Hay Fever. I. C. Walker, Boston.—p. 660.
Unpleasant End-Results in Well Performed Tonsillectomies. C. W. Richardson, Washington, D. C.—p. 678.
Contribution to Study of Brain Abscess. J. K. M. Dickie, Ottawa, Can.—p. 683.
Intimate Lymphatics of Trachea. J. F. Strauss, Chicago.—p. 715.
Malignant Tumor of Temporal Bone. A. Zebrowski, New York.—p. 739.
Anatomy and Surgery of Temporal Bone, with Reference to Mastoid in Health and Disease. J. C. Keeler, Philadelphia.—p. 759.
Sphenoethmoid Sinusitis. J. J. Shea, Memphis, Tenn.—p. 813.
Present Status of Skiagraphic Interpretation as an Adjunct in Diagnosis of Catarrhal Affections of Accessory Sinuses. R. H. Skillern, Philadelphia.—p. 855.
Otitic Pyemia without Sinus Thrombosis. E. M. Seydell, Wichita.—p. 862.
Report of Case of Thrombosis of Superior Petrosal Sinus of Otitic Origin, Presenting a Symptom Complex Strongly Suggesting Diagnosis. W. G. Shemeley, Jr., Philadelphia.—p. 869.
Electrocoagulation in Treatment of Carcinoma of Larynx. F. J. Novak, Chicago.—p. 878.
Vasomotor Disturbances of Upper Air Passages and Sinus Disease. J. L. Goodale, Boston.—p. 882.
Barany's Priority. I. W. Voorhees, New York.—p. 895.

Boston Medical and Surgical Journal

Nov. 30, 1922, **187**, No. 22

*Injuries to Crucial Ligaments and Avulsion of Tibial Spine. C. F. Painter, Boston.—p. 765.
Comparative Statistics on Physical Examinations of Pupils of Boston Public Schools from December 1, 1915, to June 30, 1922. W. H. Devine, Boston.—p. 774.
*Chronic Intestinal Indigestion During Second and Third Years of Childhood. L. W. Hill, Boston.—p. 777.
*School Children and Spinal Curves. E. H. Bradford, Boston.—p. 781.
Spinal Flexibility. E. H. Bradford, Boston.—p. 785.
Electrocardiographic Signs of Coronary Thrombosis and Aneurysm of Left Ventricle of Heart. M. H. Kahn, New York.—p. 788.
Roentgen-Ray Treatment of Acne Vulgaris. R. Jacoby, Boston.—p. 793.

Injuries to Crucial Ligaments.—The keynote of the experience of the most careful observers, Painter says, seems to be that ruptures of crucial ligaments are not as serious affairs as at one time they were credited with being. Very serviceable joints may be expected after injuries of this nature, and the operative methods employed may be counted on to restabilize the joints with very little surgical risk. It would not appear that in the majority of instances the conditions call for the tunneling operations and transference of muscles or transplants of fascia. Through the median patellar incision the crucials may be repaired or bridged so that they repair themselves. Protection with a "cage" splint for several months after walking is commenced should be insisted on. So far as the treatment of avulsions of the tibial spines are concerned, Painter's experience has convinced him that they should be treated conservatively by a cast with the leg in extension.

Chronic Intestinal Indigestion in Childhood.—Hill describes chronic intestinal indigestion as a disease, the essential nature of which is probably an infection of the contents of the small intestine with organisms which would not be there, this infection being usually caused in the first place by overfeeding with too much solid food at too early an age, or by an acute attack of diarrhea. The basis of treatment is a low starch and fat, high protein diet. Nothing whatever in the way of results can be accomplished without considerable painstaking study of each individual case.

Schoolchildren and Spinal Curves.—With proper attention on the part of the parents, school authorities and physicians, Bradford says, it may be expected that future generations will have better carriage and straighter backs than are at present seen among schoolchildren. He describes various procedures which may be used to keep children's backs straight. Where the spinal column sags in the dorsolumbar region and there is a marked hollow back, forward pressure is necessary on the sacrum and upper part of the spinal column with back pressure on the abdomen, while the shoulders are held back and the neck kept from bending forward. This can be accomplished by a simple arrangement. Two strips of steel are fastened together in the shape of a cross, the short cross piece to extend across the shoulders at the level of the axillae. To the top of the upright arm of the cross can be fastened a band of ribbon or webbing which can be tied around the neck. To the end of the cross arms is attached webbing long enough to pass around the shoulders, crossed in the back, to be buckled in front to a square piece of leather or canvas placed over the abdomen. The bottom of this abdominal piece is secured by straps coming around the lower part of the trunk from the lower end of the steel upright. The abdominal cloth can be kept from rising by garter supporters or by attached webbing straps passing around the thighs. The patient can with this arrangement be kept for a required portion of the day in a proper position.

Illinois Medical Journal, Oak Park

November, 1922, **42**, No. 5

Effects of Hypothyroidism. J. H. Hutton, Chicago.—p. 337.
Some Newer Phases of Vitamin Studies. A. D. Emmett, Detroit.—p. 342.
Medical Cults from Standpoint of Publicity. C. E. Humiston, Chicago.—p. 352.
Advances in Chemistry as Aids to Clinician. H. C. Bradley, Madison, Wis.—p. 356.
Medical Economics Problems. E. H. Ochsner, Chicago.—p. 362.
Graduate Instruction in Ophthalmology. W. H. Wilder, Chicago.—p. 366.
Surgery of Lung. C. U. Collins, Peoria, Ill.—p. 372.
Methods of Refinement in Ophthalmic Diagnosis. R. Von Der Heydt, Chicago.—p. 375.
Tuberculosis in Childhood. C. Jacobson, Chicago.—p. 378.

Indiana State Medical Association Journal, Ft. Wayne

November, 1922, **15**, No. 11

Biliary Tract Infection and Its Differentiation from Ulcer. C. L. Mix, Chicago.—p. 373.
Four Cases of Congenital Pyloric Stenosis. O. G. Pfaff, Indianapolis.—p. 378.
Epidemic Encephalitis After-Effects. W. A. Fankboner, Marion.—p. 381.
Therapy of Syphilis. J. E. Luzadder, Bloomington.—p. 385.

Journal of Biological Chemistry, Baltimore

November, 1922, **54**, No. 3

Glutathione. II. Thermostable Oxidation Reduction System. F. G. Hopkins and M. Dixon, Cambridge, Eng.—p. 527.
Colorimetric Method for Determination of Small Amounts of Magnesium. F. S. Hammett and E. T. Adams, Philadelphia.—p. 565.
*Metabolic Disturbances in Cats on Milk Diet. G. W. Pucher and K. F. Cori, Buffalo.—p. 567.
*Constancy of Creatin-Creatinin Excretion in Children on High Protein Diet. V. J. Harding and O. H. Gaebler, Toronto, Can.—p. 579.
Some Sources of Error in Determination of Chlorids in Blood and Similar Material. I. Greenwald and J. Gross, New York.—p. 589.
Combined Uric Acid in Beef Blood. A. R. Davis, E. B. Newton and S. R. Benedict, New York.—p. 595.
Distribution of Combined Uric Acid in Corpuscles of Beef Blood. E. B. Newton and A. R. Davis, Boston.—p. 601.
Combined Uric Acid in Human, Horse, Sheep, Pig, Dog and Chicken Blood. E. B. Newton and A. R. Davis, Boston.—p. 603.
Influence of Water Deprivation, Pilocarpin and Histamin on Changes in Blood Concentration in Rabbit. F. P. Underhill and S. C. Roth, New Haven, Conn.—p. 607.
Use of Iodin in Determination of Glucose, Fructose, Sucrose and Maltose. F. A. Cajori, San Francisco.—p. 617.
Pigments of Mendelian Color Types in Maize: Isoquercitrin from Brown Husked Maize. C. E. Sando and H. H. Bartlett, Ann Arbor, Mich.—p. 629.
Chart for Conversion of Colorimetric Readings Into Hydrogen Ion Concentration. J. F. McClendon, Minneapolis.—p. 647.

Metabolic Disturbances in Cats on Milk Diet.—Cats when fed on meat and water excrete a urine normal for carnivorous animals. The total carbon dioxid content of the urine is very small and constant in value. Cats when fed on milk excrete in from twenty-four to forty-eight hours a urine which shows the following qualities: (*a*) alkaline to brilliant yellow or even to phenolphthalein; (*b*) substances which easily reduce Benedict's solution (five minutes boiling); (*c*) high amounts of bicarbonates (calculated from total carbon dioxid evolved); and (*d*) increase of the ammonia and the ammonia total nitrogen ratio. These symptoms were observed as long as the animals were maintained on a milk diet (three weeks). Within forty-eight hours after the withdrawal of the milk the animals returned to normal. Milk sugar is not responsible for these changes in the alkali metabolism of the cats.

Creatin-Creatinin Excretion on High Protein Diet.—Creatinuria in pathologic conditions, Harding and Gaebler state,

shows the same general rule as creatinuria in children. The total creatin coefficient averages 21.9, a figure very close to that given as the average for children of 22.7, and that the variations in the coefficient cover the same range as does the creatinin coefficient in normal man. It would not appear from the results obtained that the thyroid gland plays any direct role in the production of creatinuria. Acromegaly, muscular dystrophies, and children all show a power to produce the same amount of creatin per kilo body weight as the normal adult. Only in so far as the activities of the thyroid after the proportion of muscular mass to total body weight, does that gland contribute a quota to the production of a creatinuria.

Journal of Urology, Baltimore

November, 1922, **8**, No. 5

*Operative Cure of Incontinence of Urine. H. H. Young, Baltimore.—p. 361.
*Pathology and Mechanism of Prostatic Hypertrophy. J. L. Tenenbaum, New York.—p. 431.
Carcinoma in Ureteropelvic Juncture Metastatic from Prostate. A. S. Giordano and H. C. Bumpus, Rochester, Minn.—p. 445.
*Streptothrix Prostatitis: Preliminary Report. A. H. Schwartz and J. Cancik, Duluth, Minn.—p. 451.

Operative Cure of Incontinence of Urine.—Cases are cited by Young to prove that even after great traumatism, extensive destruction of both internal and external sphincters, and in the presence of much scar tissue, it is still possible by means of thorough plastic operations to cure urinary incontinence and obtain normal micturition. In some cases the defect is posterior and excision of scar tissue and sphincteric plastics must be carried out along the floor of the urethra both through the suprapubic and perineal incision. Where the defect is along the roof of the urethra as in epispadias, excision and plastic must be along the roof. Where incontinence is due to fistulae which parallel the urethra whether after fracture of the pelvis, or from dermoid cysts of the prevesical space, the restoration of a normal urethra, excision of strictures and the closure of fistulas must be carried out, but if the internal and external sphincters have been injured, the operation must include plastic procedures to restore these sphincters. Each case is, therefore, a study unto itself and the operation has to be varied according to the findings and conditions presented, as in the ten cases detailed in which excellent results were obtained.

Prostatic Hypertrophy.—Prostatic hypertrophy cannot be considered as a disease, Tenenbaum maintains. It is with the secondary changes in the urinary tract caused by proliferation of the periurethral glands that the true pathologic process develops. The changes in the urethra in regard to size, lumen and curve are the result of various cooperating and antagonistic forces, of which the direct pressure of the intruding glands, the indirect influence of the changes in the bladder upon the urethra and the anatomic peculiarities of the latter, are the most important factors. The part of the urethra which is directly subjected to molding by the growth is the supramontane part of the prostatic urethra. The conception of back pressure as the primary cause of the changes in the upper urinary tract is inconsistent with the anatomic and physiologic peculiarities of the bladder and the ureters. Contraction of the bladder prevents rather than causes urinary reflux, and in an atonic bladder urinary reflux is still less probable.

Streptothrix Prostatitis.—Of twenty cases in which cultures were made by Schwartz and Cancik on special mediums in thirteen, or 65 per cent., the streptothrix was demonstrated in culture, sometimes in pure culture, sometimes mixed with staphylococci. Of the twenty cases, in seventeen there was found a definite urethral discharge, among these cases were thirteen cases in which the streptothrix had been demonstrated. In nine of the thirteen streptothrix cases the discharge seemed characteristic; it was more profuse than in the other cases and was distinctly mucopurulent. This type of discharge was not noted in the nonstreptothrix cases. A vaccine was made from the pure cultures of the streptothrix. Injections were given hypodermically, beginning with a small initial dose, 0.05 c.c., repeated every three or four days, and gradually increasing the dose until in some cases as high as 1 c.c. was given. A local reaction developed in all the cases, and in some there was a marked systemic reaction. Seven patients were relieved from the symptom of discharge with no other treatment. Three patients required massage of the prostate in addition to the vaccine before relief from discharge could be noted. Two patients improved. In one case there was no improvement with massage and twenty-two injections of vaccine and cultures showed streptothrices after suspension of therapy.

New York State Journal of Medicine, New York

November, 1922, **22**, No. 11

Criticism of Certain Tendencies in American Obstetrics. J. W. Williams, Baltimore.—p. 493.
Obstetric Analgesia. R. C. Coburn, New York.—p. 499.
Obstetrical Analgesia. J. V. D. Young, New York.—p. 501.
Rectal Complications of Pregnancy and Puerperium. D. C. McKenney, Buffalo.—p. 503.
*Brain Tumors and Abscesses. E. A. Sharp and W. F. Jacobs, Buffalo.—p. 507.
*Neuropsychiatrist and Study of a Person as a Whole. L. F. Barker, Baltimore.—p. 512.
Orthopedic Surgery and Neurologist. L. Mayer, New York.—p. 515.
Possible Clinical Significance of Thyroid-Suprarenal Cortex Interrelationship. D. Marine and E. J. Baumann, New York.—p. 518.
Solid Edema of Face and Eyelids: Report of Four Cases. W. B. Weidler, New York.—p. 521.
*Changes in Virulence of Tubercle Bacilli. E. R. Baldwin, Saranac Lake, N. Y.—p. 524.
Anaphylaxis from Wasp Sting. N. P. Brooks, Croton-on-Hudson, N. Y.—p. 527.

Brain Tumors and Abscesses.—Thirty-eight cases of brain tumor and eleven cases of brain abscess are analyzed by Sharp and Jacobs. Of the former twelve cases showed definite focal signs preceding the general pressure symptoms. These focal signs, insignificant at first, gradually developed a definite syndrome of sufficient value to localize the lesion before the diffuse pressure symptoms masked the clinical picture. In fifteen cases the general symptoms appeared co-incidently with the focal symptoms and the localizing symptoms were more or less obscured by the general pressure symptoms. The remaining eleven cases showed only general symptoms: headache was present in thirty-six; optic disk changes in thirty; vertigo in eighteen; vomiting in twenty-five; changes in pulse rate in fourteen; psychic disturbances in fifteen. In the nontumor or doubtful cases the headaches were also the most prominent symptom; next the vertigo and vomiting. The highest pressure recorded in this series was 850 mm. water pressure, equivalent to about 63 mm. of mercury. The mechanical factors in the brain abscess cases were similar to those found in the tumor growths. The general pressure symptoms, however, were less intense and in a few cases were absent.

Need for Psychophysical Study.—The knowledge and technic necessary for the thorough study of a (psychophysical) person, as a whole, Barker says, has become so complex that it is now beyond the power of a single physician to attain to mastery of all parts of it. The complete analytic and synthetic study of a person, a psychophysical individual, by modern clinical methods demands (1) examinations by experts in the study of the several component bodily systems (respiratory, circulatory, digestive, urogenital locomotor, neural, endocrine); (2) technical studies of the biography with special reference to the assets and deficiencies of the associated personality, and (3) an integration of the results of the various examinations into a diagnostic whole that is properly coordinated and subordinated. By such a thorough survey only can the modes of reaction of the phenotype or "realized person" be as satisfactorily recognized and the hereditary and environmental factors be as fully appreciated as the present state of clinical knowledge and technic make possible. When the results obtained through the examinations of internists, of various medical and surgical specialists, of neurologists and psychiatrists have been collected and arranged, the data can then be critically examined with reference both to the endogenous and the exogenous factors that have been responsible for the production of the special phenotype (or realized person) that the patient represents. It should then be possible to plan a therapy that will pay due

attention to the physical, chemical, psychic and situational measures that will most favorably modify the person in the direction of adequate adaptability. In the present state of diagnosis, the knowledge we can gain of a person as a whole is but fragmentary, but we shall work with greater confidence if we are sure that our studies are properly directed.

Changes in Virulence of Tubercle Bacilli.—Baldwin discusses briefly the significance of the virulence of tubercle bacilli in making a prognosis. At Saranac, a culture known as R1 of human tubercle bacilli, which is thirty years old, retains slight pathogenicity. A culture, H37, isolated seventeen years ago is still quite pathogenic. A culture of bovine tubercle bacilli, B1, twenty years old, is still very virulent for rabbits. Baldwin emphasizes the need of methods for the determination of the virulence of tubercle bacilli and a suggested standard procedure. The possible correlation of clinical forms of tuberculosis with variations in strains of bacilli is pointed out.

Philippine Islands Medical Association Journal, Manila

September-October, 1922, **2**, No. 5

Effect of Milk Injections in Ocular Inflammations. A. S. Fernando and F. Nicolas, Manila.—p. 218.
Relation of Physical Exercise to Growth and Development. R. R. Ylanan.—p. 223.
Treatment of Eclampsia. A. Villarama, Manila.—p. 227.
Health Officer and Public. J. P. Bantug.—p. 231.
Legal Medicine and Other Collateral Subjects as Taught in Medical Colleges of Various Universities in United States and in Europe, and in College of Medicine and Surgery of University of Philippines. S. de Los Angeles.—p. 232.

Philippine Journal of Science, Manila

October, 1922, **21**, No. 4

Diagnoses of Hainan Plants. E. D. Merrill, Manila.—p. 337.
Effect of Sulphur Compounds on Cement. J. C. Witt, Manila.—p. 357.
Use of Textile Fibers in Microscopic Qualitative Chemical Analysis. V. Detection of Gold by Means of Stannous Chlorid-Pyrogallol Viscose-Silk Fibers. H. I. Cole, Manila.—p. 361.
Influence of Substances on Cement and Concrete. J. C. Witt, Manila.—p. 365.
New or Little Known Tipulidae from Philippines (Diptera). C. P. Alexander, Urbana, Ill.—p. 373.
Indo-Malayan Rhynchitines (Curculionidae). E. Voss, Waldsiedlung Spandau, Germany.—p. 385.

South Carolina Medical Association Journal, Greenville

November, 1922, **18**, No. 11

Aortic Insufficiency. J. F. Woods, Charleston.—p. 315.
Surgical Anatomy of Temporal Bone. M. R. Mobley, Florence.—p. 318.
Faulty Food in Relation to Intestinal Stasis and Auto-Intoxication. S. Brunson, Sumter.—p. 320.
Case of Intestinal Rupture, Caused by Compressed Air Entering Anus. J. R. Sparkman, Spartanburg.—p. 324.
Obstetrics on R. F. D. G. E. Thompson, Inman.—p. 325.
Cholecystitis. S. O. Black, Spartanburg.—p. 330.
Phenolsulphonephthalein Test. M. Weinberg, Sumter.—p. 333.

Wisconsin Medical Journal, Milwaukee

November, 1922, **21**, No. 6

*Effect of Antisyphilitic Treatment on Kidney. W. F. Lorenz and W. J. Bleckwenn, Madison.—p. 211.
Value of Transuterine and Transabdominal Gas Inflation of Female Pelvis with Carbon Dioxid. R. S. Cron.—p. 215.
*Traumatic Rupture of Femoral Artery with Hematoma. W. C. F. Witte and H. E. Zilisch, Milwaukee.—p. 218.
Relationship of Genito-Urinary Diseases to Chronic Patient. B. C. Corbus, Chicago.—p. 222.

Effect of Antisyphilitic Treatment on Kidney.—Lorenz and Bleckwenn's clinical experience leads them to believe that many patients with syphilis will be found to be suffering from nephritis of varying degree which will clear up under antisyphilitic treatment, demonstrating probably the syphilitic origin of that nephritis. Kidney function tests have the apparent advantage of disclosing kidney embarrassment before the usual signs of albumin and casts are demonstrated in the urine. The authors advocate the use of the kidney functional tests, before, during and after drug administration. If it is found that the drug administration increases the renal abnormality it then becomes a matter of selecting the least irritating of the antisyphilitic measures. In a borderline case in which the renal mechanism might easily be injured by the larger doses of a drug generally employed, a careful study of the renal function will disclose the amount of drug that can be tolerated without such injury. Although the actual percentage of cases which developed kidney lesions resulting from antisyphilitic treatment is small, it is still very essential to avoid such disaster and it is strongly felt that the study as outlined above is imperative. The most important finding by Lorenz and Bleckwenn not observed before is that a kidney function test made immediately after drug administration cannot be accepted as evidence of kidney impairment.

Traumatic Rupture of Femoral Artery.—While riding a motorcycle for the first time, Witte and Zilisch's patient ran into a telephone pole and in falling from the machine hit his abdomen against one of the handle bars. He arose and walked about 10 feet unassisted, using both legs. Within a few hours he was unable to use the left leg at all. The abdomen presented an unusual spherical mass about 10 inches in diameter, located in the left inguinal region, extending up into the lower left quadrant and down over the left leg. This mass was apparently between the skin and muscles of the abdominal wall and was very firm, hard and nonpulsatile. The skin over this tumor was unbroken. The left side of the scrotum was swollen and the genitalia were slightly discolored on the left side. There was a flaccid paralysis of the left thigh and a spastic paralysis below the knee. On the inner side of the thigh there was marked hyperesthesia. Below the knee there was complete anesthesia. All voluntary control of the leg was apparently lost. The roentgen ray showed no fracture of the pelvis or femur. The pathologic changes found at operation were a hematoma below the skin, laceration of all abdominal muscles, exposing the femoral artery which was completely severed, and both proximal and distal ends of the artery contained a blood clot. There was no active hemorrhage. The nerve was evidently not lacerated. There was a laceration of the muscle and tissues between the bladder and the peritoneum. The left leg was paralyzed and there was a beginning gangrene of the foot. Later an atypical amputation was done about 5 inches below the knee joint.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

Nov. 18, 1922, **2**, No. 3229

Animal and Vegetable Pathology in Relation to Human Disease. I. Animal Pathology in Relation to Human Disease. F. Hobday.—p. 955.
Id. II. Some Aspects of Vegetable Pathology in Relation to Human Disease. W. H. Lang.—p. 958.
Some Characteristics of Virus Diseases of Plants. E. J. Butler.—p. 963.
Disease Resistance in Plants. F. T. Brooks.—p. 964.
*Persistent Eosinophilia with Splenomegaly. S. McDonald and A. F. B. Shaw.—p. 966.
*Cancer of Scrotum: Etiology, Clinical Features and Treatment of Disease. A. H. Southam and S. R. Wilson.—p. 971.
Removal of Paper Fastener by Direct Peroral Bronchoscopy. H. Tilley.—p. 973.
*Case of Arsenical Keratosis Followed by Cancer. H. C. Semon.—p. 975.
Puerperal Infection Mortality in Wales. E. J. Maclean.—p. 976.
Hemorrhagic Chickenpox. W. McC. Wanklyn.—p. 977.
Potassium Permanganate in Dermatology. J. A. Scott.—p. 977.

Persistent Eosinophilia with Splenomegaly.—McDonald and Shaw have had under observation a case of persistent eosinophilia (from 71.4 to 82.3 per cent.) associated with a high total leukocyte count (from 34,000 to 138,000) and marked splenomegaly. The condition appears to be extremely rare. The authors have found records of only two similar cases. Splenectomy was performed with marked improvement in the patient's physical condition. The ratio of phagocytic power of the eosinophils to the polymorphonuclears was 1:3.9 and 1:9.5, respectively, on two occasions. The nature and significance of Charcot-Leyden crystals are still undetermined, yet there appears to be strong evidence in support of the view that they are in some way a product of eosinophil leukocytes. The marked eosinophilia present in this patient has afforded an opportunity of inquiry along these lines. The appearances found lead the authors to suggest: (1) that the crystals are

first formed within the substance of the eosinophil leukocytes; (2) that the cells eventually break down and liberate the crystals, which then grow into larger formations; (3) that there is no definite evidence that the crystals primarily arise from the oxyphil granules of disintegrated eosinophil cells; and (4) that the conditions which lead to the formation of crystals appear suddenly about the third or fourth days.

Cancer of Scrotum.—One hundred and forty-one cases of cancer of the scrotum are analyzed by Southam and Wilson. The occupations of these patients are of considerable interest: epithelioma of the scrotum was largely associated with two occupations—cotton spinning (sixty-nine cases) and workers in tar and paraffin (twenty-two cases). There was only a single chimney-sweep. In mule-spinners the growth is usually situated on the anterior aspect of the left side of the scrotum, a position explained by the occupation of the spinner. The etiology appears to depend on chronic irritation, the result of friction and contact with oil. It is doubtful if the condition is preceded by an innocent stage. The disease is similar in general features to other forms of cutaneous cancer and equally malignant. The only hope of successful treatment lies in early and radical operation.

Arsenical Keratosis Followed by Cancer.—The case reported by Semon illustrates the danger of prolonged arsenical medication by the mouth. The patient had taken arsenic continuously for seven years for psoriasis. By this time pigmentation of the abdomen and warty growths on the palms and soles developed. Fourteen years after cessation of the drug the hyperkeratosis on palms and soles was as obvious as ever, and a small painless ulcer made its appearance in or around one of the warty growths on the outer border of the right sole. The ulcer persisted, and was not regarded as serious until Semon saw the man and recognized the lesion. The right leg was amputated through its lower third and recovery was uneventful.

Glasgow Medical Journal

November, 1922, **16**, No. 5

*Clinical Significance of Failing Sight. A. M. Ramsay.—p. 289.
Some Links Between Natural History and Medicine. J. A. Thomson.—p. 318.
Cause of Increased Electrical Excitability. N. Morris.—p. 329.

Clinical Significance of Ophthalmic Examination.—Ramsay stresses the fact that the eye is an integral part of the body, and is implicated in many forms of general disease; consequently, a knowledge of clinical ophthalmology ought to be part of the medical equipment of every general practitioner. The family doctor ought to include the eye in the routine examination of a patient. Let him, if he can, make full use of the ophthalmoscope in the same way that he employs the stethoscope, the polygraph, the sphygmomanometer, the clinical thermometer, and applies chemical tests in the examination of the urine and of other excretions of the body; but he must understand that it is far more important to know how to make a thorough functional examination of the eye. He must be able to test the sensibility of the optic nerve and retina before he is able to form a trustworthy opinion of the condition of a patient who is complaining of failing sight.

Irish Journal of Medical Science, Dublin

August, 1922, **5**, No. 6

*Relationship of Eclampsia To Other Toxemias of Pregnancy. G. FitzGibbon.—p. 245.
Rheumatoid Arthritis and Allied Conditions. R. J. Rowlette.—p. 261.
Vesicles of Vesicular Mole. E. J. R. Evatt and L. S. Simon.—p. 267.
*Two Cardiac Cases. L. Abrahamson.—p. 271.

Relationship of Eclampsia to Other Toxemias of Pregnancy.—FitzGibbon emphasizes the close association of eclampsia with all the other toxemias of pregnancy, in incidence, cause, symptoms and treatment. The pathologic findings in toxemia, eclampsia and toxemia hemorrhage are identical. The one condition common to all cases is a subacute nephritis, and with this a variable degree of focal necrosis in the other organs, markedly the portal system of the liver. This is clearly an indication of an irritant excreted by the kidneys, injuring their function, and then affecting other tissues of the body.

Auricular Fibrillation and Heart Block.—A case of auricular fibrillation still showing normal rhythm four and a half months after treatment by quinidin is reported by Abrahamson and also a case of complete heart block, with multiple ventricular extrasystoles.

Journal of Tropical Medicine and Hygiene, London

Nov 1, 1922, **25**, No. 21

Cholera Epidemics in Japan and in Her Colonies. M. Miyajima.—p. 337.
Case of Isospora Hominis (Rivolta), Dobell, Probably Contracted in Durban, South Africa. H. B. Newham and A. Robertson.—p. 344.
Antimony and Sulphur in Treatment of Lepers. F. G. Cawston.—p. 345.

Nov. 15, 1922, **25**, No. 22

*Histopathology and Hematology of Guinea-Pigs Infected with Leptospira Icteroides. W. H. Hoffmann.—p. 353.
Case of Hemorrhagic Pancreatitis in Dog. W. A. Young.—p. 360.

Pathology of Leptospira Icteroides Infection.—A thorough investigation of the histopathology and hematology in a large series of guinea-pigs, experimentally infected with *Leptospira icteroides* (strain "Merida"), isolated by Noguchi from human yellow fever, gave results absolutely identical with those found in another series of animals infected with *Leptospira icterohaemorrhagiae*, isolated from Habana rats. There were no clinical and anatomic differences in the two experimental infections. The histologic changes in the organs are numerous and characteristic, and in all essential parts corresponding to those found in Weil's disease in man. From the results of clinical, anatomic, histologic and hematologic examination in guinea-pigs infected with *Leptospira icteroides* (strain "Merida"), Hoffmann does not see any conclusive argument which would prove the etiologic importance which *Leptospira icteroides* "Merida" may have as the causative agent of yellow fever in man.

Lancet, London

Nov. 11, 1922, **2**, No. 5176

Spolia Nemoralia: Shrunk Heads, Ear-Plugs, and Labrets. J. Bland-Sutton.—p. 995.
Maternal Mortality of Childbearing: Its Causes, and How to Deal with Them. T. W. Eden.—p. 998.
*Influence of Saturnine Compounds on Cell Growth. W. B. Bell.—p. 1005.
*Serologic Properties of Dysentery Stools. A. Davies.—p. 1009.
*Cheese Poisoning: With Special Reference to Dover Outbreak. H. M. C. Macaulay.—p. 1012.

Influence of Lead on Cell Growth.—Bell asserts that lead enters into combination, probably chemical, with lecithin. Lead affects those normal tissues of the body in which lecithin or similar lipins are present in greatest quantity. Malignant neoplasms contain lecithin in direct proportion to their rate of growth. Intravenous injections of a colloidal preparation of lead, while not without danger, can, with experience, be so regulated that little or no disturbance is caused. After previous intravenous injection of a colloidal preparation lead can be recovered from the malignant growth in a quantity proportionately greater than that contained in the rest of the body. Lead in suitable doses appears in nearly all cases to arrest the growth of malignant tumors. In some cases treatment with this metal may result in disappearance of the neoplasm, possibly by the action of the normal tissues on arrested cell developments. The probability of this appears to depend on the vascularity of the parts. At the same time there is improvement in the general condition. It is desirable when possible that the bulk of the growth be removed, and that this procedure be followed immediately by the injections while there is increased blood supply to the part concerned. Previous intravenous injections of a colloidal preparation of lead seem to increase the beneficial effect of roentgen rays, owing to the promotion of secondary radiation. It is possible that prophylactic treatment after complete removal may be of considerable importance with regard to the prevention of recurrence.

Serologic Properties of Dysentery Stools.—Davies made an attempt to ascertain whether the examination of the fluid portion of dysentery stools would afford information as to the nature of the dysenteric infection. His paper is based on the argument that in bacillary dysentery specific antibodies to the *B. dysenteriae* would be present, whereas in amebic dysentery, caused by a protozoal agent, such bacillary anti-

bodies would be absent from the intestinal exudate; the intestinal tract being the seat of infection, the fluid exudate would contain a larger antibody content at an earlier date than the blood serum, and therefore an early diagnosis could be made. The antibody investigated was the agglutinin. Details of technic and the results obtained both in early and in late cases are given. Agglutinins were found to be present in low titer, and their significance is discussed. Besredka's researches showing that the immunity in bacillary dysentery is established at the site of the intestinal lesions are quoted, and in view of Besredka's findings the hope is expressed that the intestinal exudate may receive attention from laboratory workers with the view of ascertaining whether a method may be established which has the advantages of simplicity and rapidity and of involving the minimum of laboratory equipment. It is submitted that this method affords an additional means of dealing promptly with an outbreak of dysentery from the points of view of diagnosis and treatment and is of special value in adverse surroundings.

Cause of Cheese Poisoning.—Macaulay's researches point to toxin of a Gaertner-group bacillus being the usual cause of those outbreaks of poisoning in which cheese is the vehicle.

Nov. 18, 1922, **2**, No. 5177

*Occurrence and Prevalence of Parasitic Intestinal Worms During War. W. Nicoll.—p. 1049.
*Pathogenicity of Diphtheria Group. J. H. Jordan, F. Smith and A. Kingsbury.—p. 1052.
Case of Weil's Disease Occurring in London. P. Manson-Bahr.—p. 1056.
Opaque Meal. S. G. Scott.—p. 1059.
"Acute" Antrum. T. B. Jobson.—p. 1060.
Safe Artificial Ear Drum. J. Dundas-Grant.—p. 1062.
Colloidal Gold Reaction in Neurosyphilis. C. Worster-Drought, H. J. B. Fray and G. R. Lynch.—p. 1063.
Anatomy and Surgical Bearing of Nerves Found in Abdominal Wall. R. Coyte.—p. 1065.
*Case of Bilateral Exophthalmos. A. F. MacCallan.—p. 1066.
*Case of Sarcoma of Kidney in Young Boy. F. M. Hughes.—p. 1067.
Case of Strangulated Inguinal Hernia. C. P. G. Wakeley.—p. 1067.

Intestinal Parasites Cause Enteritis.—About 80 per cent. of cases of enteritis which came under Nicoll's notice were infected with entamebic cysts, chiefly *E. dysenteriae*. About 10 per cent. did not show infection with either pathogenic bacteria or protozoa, though it is possible that further continued examination might have demonstrated their presence. This residue of cases was found to harbor parasitic worms. The commonest of these were *Ascaris lumbricoides* and *Trichuris trichiura*, but the occurrence of the tapeworm, *Hymenolepis nana*, was also noted.

Pathogenicity of Diphtheria Group.—A study was made by Jordan et al. of the relation of morphologic and cultural characteristics of the diphtheria group of bacilli to pathogenicity. Seventy-four virulent and thirty-two avirulent strains of diphtheria-like organisms were examined. Neither morphology nor the intensity of Neisser staining was found to be of value as an indication of virulence. The pellicle sometimes seen on the surface of a broth culture is inconstant and may be given by virulent and nonvirulent strains. Fermentation of glucose, maltose, and dextrin with no change in saccharose is regarded as a very valuable, but not an infallible, indication of virulence. Fermentation of lactose by virulent and avirulent strains is variable. In guinea-pigs dying after inoculation with a broth culture of virulent *B. diphtheriae* the commonest lesion is a circumscribed edema at the site of inoculation which tends to disappear if the animal lives more than four days. Serous effusions are sometimes found, and although hemorrhagic suprarenals are not common the glands frequently show congestion. Cultures from heart blood and suprarenals of the dead guinea-pig indicate that a septicemia frequently occurs.

Bilateral Exophthalmos.—In the case cited by MacCallan the conclusion arrived at as a result of operation and necropsy was, that this condition originated probably in an attack of cerebrospinal fever some years previously which had cleared up and left a thickened pia-arachnoid which interfered with the return flow of lymph from the orbit. The condition, in fact, seemed to be one of lymphatic edema of the orbital tissues with most pronounced bilateral exophthalmos.

Sarcoma of Kidney in Young Boy.—Hugh's patient was 4 years of age. Six weeks before the author saw him, he had fallen over a brick onto his abdomen. He was carried home and was unable to sit up for a week. There were no signs or symptoms of injury and no vomiting. A week after the injury he was able to walk, and shortly afterward appeared to have recovered. The child was brought to Hughes because his mother had noticed a large swelling on the left side of his abdomen displacing the lower ribs and extending downward on the left side. She had observed this when bathing him a week before. Roentgen-ray examination showed a mass extending from the left loin down to the anterior superior spine and across the abdomen and up toward the right renal region. A diagnosis was made of sarcoma of the kidney. Laparotomy was considered inadvisable. Necropsy was refused.

South African Medical Record, Capetown

Oct. 28, 1922, **20**, No. 20

Injuries and Common Diseases of Eye. D. J. Wood.—p. 390.
Reactions Following Intravenous Administration of Arsenobenzene Compounds. A. R. Fraser.—p. 398.
Meningococcus and Production of Antimeningococcal Serum. F. S. Lister.—p. 404.

Annales des Maladies Vénériennes, Paris

November, 1922, **17**, No. 11

Treatment of Gonococcus Endometritis and Adnexitis. Franck.—p. 801.
Venereal Prophylaxis in Morocco. Carle.—p. 817.
Doubtful Cases of Syphilitic Reinfection. G. Belgodère.—p. 823.
Four Cases of Syphilitic Reinfection. Mouradian.—p. 838.
Extragenital Syphilitic Chancre. Decrop and Crambes.—p. 845.

Archives des Maladies du Cœur, etc., Paris

September, 1922, **15**, No. 9

Delirium Cordis in Tabes. A. Nanta.—p. 605.
*Roentgen Control in Angina Pectoris. E. Bordet.—p. 612.
*Endocrines and Coagulation of Blood. M. Perrin and A. Hanns.—p. 617.
The R Wave of Electrogram in Different Leads. La Franca.—p. 640.
Basophil Inclusions in Polynuclears. J. Sabrazès.—p. 643.

Roentgen Control in Angina Pectoris.—In most cases Bordet found distinct lesions of the aorta. Few cases presented only an enlargement of the heart without aortic changes, and in very rare cases neither the heart nor the aorta was abnormal.

Endocrines and Coagulation of Blood.—Most of the organs have both a coagulating and anticoagulating action. Perrin found a simple coagulating action in the thymus, spleen, bone marrow and kidney. A similar but much more intense action was manifested by the pituitary, bowel, lung, skin and ovaries. Similar action of the thyroid may be perhaps due to the internal secretion.

Bulletin de l'Académie de Médecine, Paris

Oct. 10, 1922, **88**, No. 32

Fatality from House Electric Current. V. Balthazard.—p. 111.
*Administration of Copper by Electrolysis. E. Doumer.—p. 114.
*Surgical Treatment of Tuberculous Peritonitis. Témoin.—p. 116.
*Anhematosis. J. Pescher.—p. 125.

Electrolytic Administration of Copper.—Doumer is professor of medical physics at Lille and he reports that he has established by experiments on himself and a number of volunteers that the introduction into the body of a solution of a copper salt by electrolysis is harmless. The only disadvantage seems to be a bronzing of the skin, and this occurs only on regions exposed to the light. He thus introduced in one subject 100 mg. of metallic copper daily for fifteen days, which corresponds to about 270 mg. of copper sulphate, without the slightest apparent harm. In others, 50 mg. of copper were thus introduced daily for three months without the slightest harm. The bronzing appeared more pronounced in the persons exposed most to the outdoor light. These doses are far larger than copper can be administered in any other way, and by this means the dosage can be exact. He does not discuss any therapeutic action from the copper; his aim being only to announce the harmlessness of the procedure. He generally used copper formiate.

Surgical Treatment of Tuberculous Peritonitis.—Témoin is loyal to the practice of treating tuberculous peritonitis by laparotomy. He has applied this in more than 300 cases, but

makes a point of operating only on sunny days, with the table arranged so the sunlight streams into the abdomen as it is opened. The lips of the incision and of the peritoneum are retracted to the utmost to expose as much as possible of it to the sunlight for ten or fifteen minutes. Then he sutures. Tuberculous peritonitis, fortunately, is often primary; and this is the truly surgical form, in which the laparotomy almost always gives excellent results, whatever the stage of the disease. He has had numbers of patients apparently in the last stages of cachexia who recuperated after the laparotomy and seemed to be completely cured in six or eight weeks, gaining up to 8 kg. in weight. After the eighth day he begins systematic heliotherapy, exposing the abdomen to the sunlight for an hour or two every day. The cure was generally complete by the end of the second month. He ascribes the benefit to the sunlight, because the air alone or a laparotomy on a cloudy day fails to display this curative influence. In a few cases he had to operate later to detach old adhesions, and he was always amazed at the enormous transformation that had been going on in the interim, the lesions melting away and all the pathologic products being absorbed. This digestion of toxic products explains the slight fever sometimes observed for a few days after the laparotomy. He has had cases in which some slight incipient pleural or pulmonary tuberculous lesion disappeared along with the peritoneal tuberculosis. A cure can be counted on, he says, in about 80 per cent. of the cases, even the farthest advanced. This surgical treatment seems to impart such surprising curative power to the peritoneal reaction which follows, that it suggests that the clue to the cure of tuberculosis in general lies in this direction.

Anhematosis.—Pescher deplores that no one thinks of examining the respiratory capacity in a child that is not thriving, or in an adult with chronic bronchitis, or oliguria from heart or kidney disease, or in the obese, and yet they are suffering from curable anhematosis. It may be secondary to some pulmonary or cardiac affection, or it may be primary from some neuropathic inhibition of the respiration center. In either event, graduated, progressive and objective training in breathing exercises, especially with the spiroscope, may soon transform conditions as the blood gets properly oxygenated.

Oct. 31, 1922, **88**, No. 35

*Levulose in Treatment of Diabetes. Desgrez et al.—p. 167.
Necessity for Medical Examination of Chauffeurs. C. Fiessinger.—p. 175.
Embryo Organotherapy. P. Carnot.—p. 177.
*Iodin Internally for Children. P. Nobécourt.—p. 179.
Hemolytic Jaundice After Vaccination Against Smallpox. Doré.—p. 181.

Levulose in Treatment of Diabetes.—Desgrez and his co-workers report research which confirms that the various sugars are not physiologically equivalent, and that the absence or presence of vitamins modifies the tolerance for carbohydrates in diabetes. The utilization of each kind of sugar seems to be independent of the other kinds, each kind having its specific mode of being utilized in the individual case. The diet of diabetics must take into account not only the amount but the quality of the sugars; their functional rôle seems to be determined to a certain extent by their molecular structure and chemical function. Two eight day periods each month in which levulose is given seem to offer a number of advantages in the management of diabetes. They found most effectual a course of three doses of 10 gm. each during the day, or four doses of 7 gm. This was supplemented with calcium phosphates and 5 gm. of fresh beer yeast to supply the vitamin B. They give the metabolic findings in a few cases to illustrate the advantages of this. The levulose wards off certain metabolic disturbances. The individual tolerance of the diabetic for carbohydrates has to be determined first, and then the levulose is given to the maximum which he is capable of assimilating.

Internal Iodin Treatment for Children.—Nobécourt has been treating children with a 10 per cent. tincture of iodin, giving 10, 20 or 30 drops a day, in milk, fractioned in three doses, increasing by a drop or two until the children are taking 40 to 100 drops a day. Some of the older children took up to 250 or 300 drops. This corresponds to 4 or 5 gm. of the tincture, that is, 0.4 or 0.5 gm. of iodin. It acts on the general health; the weight increases, and it seems to modify advantageously the lymphoid tissues, but it did not seem to display any antiinfectious action.

Bulletin Médical, Paris

Sept. 16, 1922, **36**, No. 38

*Latent Primary Peritonitis. P. Savy.—p. 741.
*Gangrene from Cachexia Alone. A. Hanns and A. Weiss.—p. 745.

Latent Primary Peritonitis.—Savy refers to cases in which some inflammatory process develops in the peritoneum, chronic from the start, in persons who have never had febrile visceral disease. The symptoms are those from nearby viscera, and the special clinical feature is the variability of the symptoms from time to time. There is often a history of different physicians in turn having diagnosed appendicitis, adnexitis, etc., or the same physician changing the diagnosis as time passes. The chronic peritonitis develops insidiously, and adhesions and sclerosis drag organs out of place, but operations show that the supposedly diseased organ is sound, the plastic peritonitis independent of any subjacent visceral lesion. The hyperemia of the adjoining intestines may even induce local hemorrhagic conditions. Some typical instances of these false gastric ulcer cases, false colon cancers, false gallstone disturbances, etc., are related. In one case the generalized primary peritonitis induced symptoms mistaken for tabetic gastric crises. In differentiation, the discovery of tuberculous lesions elsewhere is strong presumptive evidence as to the peritonitis being primary. Syphilis and influenza are also liable to start this clinical picture. The cases on record of "alcohol peritonitis" and the peritonitis with chronic nephritis or arteriosclerosis need to be revised, he says, from this new standpoint. Investigation of the family antecedents may give the clue to the bacillary origin of this primary peritonitis. In the absence of all signs of tuberculosis or syphilis, abnormal loss of flesh or a subfebrile temperature is suggestive. Differentiation is important from the standpoint of treatment, as the soil must be modified, and the abdominal pains resulting from the primary plastic peritonitis must not be mistaken for neuropathic disturbances, or for enteritis compelling rigid dieting when these patients need nourishing food and other measures to help to throw off their tuberculosis. When a laparotomy is necessary to break up adhesions, the outcome is not very promising, as the tendency persists. Conditions are much the same as with primary pleuritis, but with the latter the lung alone is involved, while with primary peritonitis any one or more of a number of viscera may be drawn into the clinical picture.

Contracture and Gangrene from Cachexia Alone.—Contracture and the gangrene of toes had developed in consequence of voluntary privations and staying in bed in the course of melancholia. No lesions in vessels, muscles or nerves could be found at necropsy of the man of 64. He succumbed to pneumonia two years after he had taken to his bed.

Paris Médical

Oct. 28, 1922, **12**, No. 43

*Cerebellar Syndromes in the Aged. J. Lhermitte.—p. 373.
*Mental Disturbances and Epilepsy of Cardiac Origin. R. Targowla.—p. 384.
Tendon Reflexes in Chronic Arthritis Deformans. D. E. Paulian.—p. 388.
*Continence of Artificial Anus. A. Schwartz.—p. 389.

Cerebellar Syndromes in the Aged.—Lhermitte gives a very careful study of these syndromes, which are more frequent than we believe. The differential diagnosis between them and the lesions of corpus striatum and the pyramidal tracts is given.

Mental Disturbances and Epilepsy of Cardiac Origin.—Targowla believes that many mental disturbances in cardiac insufficiency are due to the insufficiency of the liver. Other cases show a relation of similar symptoms to high blood pressure.

Continence of Artificial Anus.—Schwartz leaves about from 6 to 10 cm. of the length of the colon outside of the wound. This tube can be easily compressed.

Nov. 11, 1922, **12**, No. 45

Follicular Conjunctivitis Contracted in Public Baths. Terrien.—p. 425.
Treatment with Delbet's Vaccines. A. Guillemin.—p. 426.

*Attack of Gout. C. Finck.—p. 429.
Organotherapy of Menstrual Disorders. L. Fouliot.—p. 434.

Attack of Gout.—Finck finds that the attack of gout indicates the resorption of a deposit of urates. Good blood circulation makes the attack possible, while it does not appear if the local circulation is poor.

Presse Médicale, Paris

Oct. 25, 1922, **30**, No. 85

Technic for Extraction of Nonirrupted Lower Wisdom Tooth. P. Brocq and L. Monier.—p. 917.
*Electromyography. A. Zimmern and P. Cottenot.—p. 919.

Electromyography.—Zimmern and Cottenot remark that the importance of this general subject has been overshadowed by one special branch of it, namely, electrocardiography. It deserves more attention, especially in research on reflexes, on voluntary excitation, on comparison of the work of different muscles, and of responses in health and disease.

Nov. 4, 1922, **30**, No. 88

*Diffuse Atrophy of the Skin. M. Bloch and P. Blamoutier.—p. 949.
*Atrophic Cirrhosis from Relapsing Fever. A. Carniol.—p. 952.
Present Status of Creatinemia. M. Nathan.—p. 953.

Diffuse Atrophy of the Skin.—Bloch and Blamoutier describe a case of atrophic chronic dermatitis with atrophic rhinitis and pharyngeal malformation in a woman of 24. Endocrine organotherapy gave very encouraging results, and the general condition of the patient has continued to improve to date.

Atrophic Cirrhosis from Relapsing Fever.—Carniol reports the case of a woman of 23 who during a relapsing fever developed intense jaundice and atrophic cirrhosis of the liver. He states that this form of cirrhosis might be given etiologic treatment, as in syphilitic cirrhosis in which cures have been recorded even when treatment was not begun until cachexia was under way.

Nov. 8, 1922, **30**, No. 89

*Wounds of the Knee. H. Mondor.—p. 961.
*Urine Volume Output Index. M. Hélouin.—p. 965.

Wounds of the Knees.—Mondor reviews the checkered history of the treatment of wounds of the knees in the last decade. He emphasizes the one feature common to all such injuries, from the slightest to the severest, "their terrible resemblance in their aptitude to entail purulent arthritis." Treatment has grown constantly more and more conservative, and with greater attention to detail. A recent French thesis compiles 328 cases of primary suture after war wounds of the knees, with 312 completely cured without ankylosis. The progress thus triumphantly realized enforces the principle of thorough mechanical clearing out of all foreign substances in the wound, recognizing that devitalized tissues and even extravasated blood come under the heading of alien substances.

Urine Volume Index.—Hélouin found that healthy men eating the same meal at night voided different amounts of urine in the following twelve hours, the range being from 400 to 1,395 c.c. He theorizes that these wide differences are due in part to the sodium chlorid content of the body at the moment. Hence to obtain an index for comparison he had the subjects refrain from salt until the salt content of the urine was at the lowest physiologic limit. They then all voided practically the same amount of urine in the first four hours after taking a supper with a given amount of water. The range was only from 500 to 750, this parallelism being in striking contrast to the wide range in the first series of tests. Hence he insists that tests of kidney functioning must be preceded by restriction of salt for three days, or no reliance can be placed on the findings. He accepts 550 to 650 c.c. as the standard range for the first four hours after drinking 600 c.c. of water. The volume index is thus practically 100; for 100 c.c. of water ingested, 100 c.c. is voided. This represents the absorption of the water, the pressure of the blood fluid on the kidney filter, and the permeability of this filter. The pressure on the kidney filter depends on the blood pressure in general, and the effectual blood pressure is represented, as he explains, by a figure obtained by adding to the diastolic pressure one half the differential pressure. The urine output index can thus be expressed by dividing the volume index by this figure. In normal conditions he calculates the output index at 8.7. He cites a number of cases of kidney or heart disease showing a range from 5.26 to 10. His experience with this urine output index in hundreds of cases in the last four years has convinced him of its instructive value for estimating the extrarenal and renal factors in diuresis, and explaining among other things the apparently paradoxic polyuria of Bright's disease, and the oliguria with permeability unimpaired. He gives the normal output index as $\frac{100}{9+\frac{5}{2}}=8.7$.

Revue Franç. de Gynécologie et d'Obstét., Paris

September, 1922, **17**, No. 9

*Cervical Stenosis Following Curettement. J. Mouchotte.—p. 449.
Late Conservative Cesarean Section. A. Grosse.—p. 466.
Forceps with Equal Branches. Roux.—p. 476.

Difficult Labor Due to Cervical Stenosis Following Curettement.—Mouchotte recommends to think always in time on the possibility of cicatricial stenosis of the cervix in deliveries of women who had been previously subjected to a curettement.

Schweizerische medizinische Wochenschrift, Basel

Oct. 19, 1922, **52**, No. 42

*Tuberculosis of Bones and Joints. F. de Quervain.—p. 1021.
Roentgenotherapy of Tuberculosis. H. E. Walther.—p. 1023.
Proposed Swiss Law Against Tuberculosis. H. Hunziker.—p. 1028.
Traumatic Hydronephrosis and Accident Insurance. A. Sträule.—p. 1033. Conc'n.
Fleawort Seed and Linseed in Treatment of Habitual Constipation. Demiéville.—p. 1040.

The Roentgen Picture and Therapeutic Indications in Tuberculosis of Bones and Joints.—The roentgen picture gives very valuable information in these cases, but it is rarely sufficient for indication of treatment. Sometimes we find local changes in cases where the roentgenogram does not present anything new, and in other cases it can lead us to continue treatment where the other clinical signs show that no further treatment is necessary.

Policlinico, Rome

Sept. 18, 1922, **29**, No. 38

*Inflammatory Tumors of Bladder. T. Cimino.—p. 1225.
Cinchonin in Treatment of Malaria. F. Amantea.—p. 1231.

Inflammatory Tumors of the Bladder.—Cimino has had five cases in which what seemed to be a neoplasm subsided spontaneously, or after evacuation of pus, with complete recovery. They had followed the trauma of childbirth or dilatation of a urethral stricture, divulsion of the anus or a gunshot wound of the bladder. The inflammatory process in some cases was in the anterior wall, the bladder bulging smoothly and hard, as if distended. There was no metastasis, but the temperature was sometimes subfebrile, and the woody tumor had developed comparatively rapidly. The cystoscope showed the bladder mucosa congested and inflamed but nothing to suggest a tumor. When the inflammatory process is in the bladder itself, the aspect of the tumor is smooth and regular, and there are none of the villous or fringed processes seen with malignant tumors. The mucosa around is apparently normal except for hyperemia. The main point is to think of the possibility of a simple inflammatory process, and not be misled to a grave prognosis and radical operative measures. Elements for the differential diagnosis are the heredity; the age; trauma affecting the region or vicinity; some infectious process elsewhere; the slight or no reaction in the bladder, and the way in which it can be modified by simple measures, and the frequent rise in temperature. If there is suppuration, the pus is liable to find an outlet spontaneously into the bladder. Under moist heat the process rapidly subsides, as a rule, but a foreign body, or long persistence of symptoms justifies operative intervention. The chief danger with these inflammatory tumors is that they may be mistaken for and treated as malignant disease.

Oct. 16, 1922, **29**, No. 42

*Rivalta's Reaction. F. Alzona.—p. 1353.
Myiasis Superposed on Favus. P. Stancanelli.—p. 1357.

Advantages of Intraspinal Anesthesia. R. Palma.—p. 1360.
Technic for Microtest for Urea in Blood. L. Condorelli.—p. 1366.

Chemical Nature of Rivalta's Reaction.—The method of extraction used commonly for gastric and bowel mucosa has been applied by Alzona to the precipitate obtained with acetic acid—Rivalta's test for distinguishing between fluids of transudation and exudation. By this means he isolated from the reaction precipitate a minute amount of a white substance, nonprotein, isolabile, which, added to a protein, reproduced the differentiating phenomenon. It did not respond to tests for chondroitic acid.

Oct. 23, 1922, **29,** No. 43

*Intravenous Treatment of Pyelitis. V. Iura.—p. 1385.
*Cervical Glioma. A. Linassi.—p. 1388.
Coagulation of Blood and Hemorrhagic Syndromes. M. Ghiron.—p. 1392.

Intravenous Treatment of Pyelitis.—Alessandri injected in cases of pyelitis every week from 0.09 to 0.40 gm. of neoarsphenamin and every other day 0.40 to 0.90 gm. hexamethylenamin, both intravenously. The results were favorable.

Cervical Glioma.—The symptoms in Linassi's case of glioma of the four cervical segments in a 13 year old boy were progressing so rapidly that the disease resembled an acute myelitis. The patient died from respiratory paralysis three weeks after the first clinical manifestations of the disease.

Oct. 30, 1922, **29,** No. 44

*Biologic Diagnosis of Tuberculosis. I. Nasso.—p. 1417.
*Bronchial Asthma After Injury to Spine. G. Milani.—p. 1420.
Rectus Plastic in Inguinal Hernia. C. Licini.—p. 1423.

Biologic Diagnosis of Tuberculosis.—Nasso had very good results with intradermic injections of a 10 times concentrated urine (Wildbolz' method) except in the new-born where the reaction was often positive. Serum of patients concentrated in a similar way gave corresponding but weaker reactions, while the cerebrospinal fluid was strongly positive only in cases of tuberculous meningitis and miliary tuberculosis. The method is valuable even in anergic cases, because one can inject the concentrated urine in patients who are known to be sensitive.

Bronchial Asthma After Injury to Spine.—Milani describes a case of fracture of the left transverse processes of the fourth and fifth cervical vertebrae with exuberant callus. Since there were at first attacks of laryngospasm, followed by paralysis of the posterior crico-arytenoid muscle, it is reasonable to assume that not only the inferior laryngeal but the vagus too was directly affected by the formation of callus. Milani admits the possibility of an anaphylactic state previous to the trauma; the latter would be, however, the determining factor.

Oct. 15, 1922, **29,** Surgical Section No. 10

*Appendicectomy in Real Appendicitis. P. Bastianelli.—p. 525.
Transperitoneal Low Cesarean Section. P. Gaifami.—p. 540.
Two Cases of Intestinal Invagination. A. Kraus.—p. 554.
Experiments on Implantation of Dead Preserved Tissue. Regoli.—p. 559.
Decompressive Craniectomy. C. Silvan.—p. 574.
Oncology. F. Carrozza.—p. 583.

Appendicectomy in Real Appendicitis.—Bastianelli puts his personal creed on appendicitis into three aphorisms: (*a*) When physicians are discussing whether the case is appendicitis or not: it *is*. (*b*) When they are inclined to admit the possibility of appendicitis without being perfectly sure of it: it not only is, but it is about to perforate. (*c*) When the diagnosis is sure, there is already perforation, with a more or less circumscribed peritonitis.

Archivos Españoles de Pediatría, Madrid

July, 1922, **6,** No. 7

*False Scarlet Fever. J. García del Diestro.—p. 385.
Eczema in Children. J. Fernández de la Portilla.—p. 401.
Congenital Sacrococcygeal Cyst. R. Florindo Pavón.—p. 408.

False Scarlet Fever.—García cites a few examples of what seemed to be scarlet fever but the course of the case proved that merely some infectious or toxic cause was responsible for the rash and the other symptoms. In two cases it developed after the children had eaten grapes that had been sprayed with copper sulphate. In another case the scarlatinal eruption developed with Vincent's angina, and in others after antitoxin treatment of diphtheria. He then reports two cases in which acute articular rheumatism developed with almost the complete clinical picture of scarlet fever, presenting it with such accuracy as to suggest a close connection between these two diseases. The joints were painful almost from the start—arthritis so early is rare in true scarlet fever. By the end of the week, the joint lesions and pains dominated the clinical picture. The tongue was never of the strawberry type. The main arguments for the rheumatismal nature of the disease were the prompt benefit from salicylate treatment, the absence of desquamation afterward, and the fact that none of the other children in the families developed scarlatina. The children did not seem very sick, although the pulse was small and slightly irregular in the girl of 12, and the boy of 6 presented a mitral murmur and complained of vague precordial pain. In the boy the onset of the supposed scarlet fever had been sudden and acute, the eruption appearing the second day. By the third day, pain in some of the large joints and in the appendix region were the predominant symptoms. The diagnosis of appendicitis seemed most probable and the blood count sustained this assumption, but under two days of expectant treatment the acute rheumatism became unmistakable. Convalescence was slow in both cases. Appendicitis and even peritonitis of scarlatinal origin is not unknown, but has always harmlessly subsided. Veau remarked in reporting three cases that possibly chronic appendicitis may often have an unsuspected scarlatinal origin. Necropsy may show the appendix intensely congested in scarlet fever. It behaves like the tonsils in this respect. Canelli related in 1919 a case of fatal scarlet fever in which at the sixth day there was a typical localization in the appendix, and cited fifteen cases from the records. In Harrigan's case, an operation was done on the appendix, which was found sound.

August, 1922, **6,** No. 8

*Congenital Heart Block. J. Bravo y Frías.—p. 449.
*Treatment of Tuberculous Meningitis. A. Zorrilla y Polanco.—p. 462.

Congenital Heart Block.—The girl over 5 years old was otherwise apparently normal; there was no known inherited taint. Soon after the acute onset of an infectious disease at 4 the physician noted that the pulse beat was only 46. The bradycardia does not seem to interfere with or impair the work of the heart in any way. The pulse has kept at this figure during the year since and a functional disturbance seems probable, the prognosis good.

Tuberculous Meningitis.—Zorrilla refers to Pauly's method of treating tuberculous peritonitis with ascites by introducing four silk threads into the peritoneal cavity after tapping. The outer ends of the threads are fastened under the skin or in the preperitoneal tissue, and the abdomen is sutured. This insures permanent drainage, and all his eighteen patients treated in this way recovered, as also eight with tuberculous arthritis treated by autodrainage in the same way. He suggests the possible application of the same method to tuberculous meningitis, introducing the silk threads through a lumbar puncture and draining the spinal cavity into the subarachnoid cavity. Zorrilla thinks this might be worth a trial. Tuberculin injected into the spinal canal has not given favorable results. He injected subcutaneously in four cases 1 to 3 c.c. of cerebrospinal fluid drawn by lumbar puncture, according to Tilli's method, repeating this procedure at intervals of one to several days. He supplemented it with Ramond and François' method of injecting warm air into the spinal canal, about one half or two thirds of the amount of spinal fluid withdrawn. This can be repeated for one to six successive days, he says. The results of this are not so good as with the Tilli method. All these patients died, but this was to be expected, he says, as the disease was well advanced. He adds that if these two measures could be applied earlier, when tuberculous meningitis is just starting, they might improve the prognosis. No by-effects of any import were noted in his cases aside from the febrile reaction.

September, 1922, **6,** No. 9

Single Tubercle in Brain. B. González Alvarez.—p. 513.
*Prophylaxis of Measles. J. Estella and B. de Castro.—p. 517.
Anomaly of Larynx. A. Martín Calderín.—p. 526.

Convalescents' Serum in Prophylaxis of Measles.—Estella and de Castro relate that they have been watching in Czerny's

service at Berlin the experim... ...erfect a technic which will insure a durable desiccated s... ...o use in prophylaxis of measles. During an epidemic, whe... convalescents' serum is available, it is collected and dehydrated with sodium hypochlorite. Their illustration shows the Petri dish containing 5 c.c. of serum centrifuged from fresh blood—enough for one dose. This dish stands uncovered on a thick layer of sodium hypochlorite, and a glass bell is placed over the whole. In from thirty to forty-eight hours nothing is left of the serum except a pellicle in the dish. This crumbles as it is transferred to the ampule, which is then fused. The desiccated serum seems to keep indefinitely. They review the international literature on the serum prophylaxis of measles, stating that this hypochlorite method has not been published yet.

Siglo Médico, Madrid

Nov. 4, 1922, **70**, No. 3595

*Trigeminal Neuralgia. E. Fernández Sanz.—p. 437.
Graduate Lectures on Tuberculosis. I. Verdes Montenegro.—p. 439.
Biologic Properties of Tubercle Bacillus. Julio Blanco.—p. 441.
Pathogenesis of Gastric and Duodenal Ulcer. T. Hernando.—p. 442. Cont'd.

Trigeminal Neuralgia.—Fernández Sanz reviews certain accessory symptoms in trigeminal neuralgia which throw light on the diagnosis and the prognosis. He emphasizes the necessity for careful search which may reveal some removable primary cause for what seems to be essential neuralgia. With pain in the abdomen the muscles stiffen, but with trigeminal neuralgia the muscles contract and work and grimace irregularly, and the eyes, the teeth, the whole head may share in the paroxysm. This motor restlessness during the attack contrasts with the immobility during the intervals, the subject fearing to bring on a paroxysm. In a recent case the facial muscles were permanently contracted, especially the commissure on the side of the pain. The neuralgia was of six years' standing; the permanent contracture changed to excessive grimacing when the attacks came on. The condition in this case seems to be more like the stiffening of the abdominal wall with visceral pain, and it suggests that there is an element of neuritis in the neuralgia in this case. The conjunctival and corneal reflexes may be exaggerated or attenuated; in the latter case the prognosis is graver as this indicates a deficit in functioning. A zone of hyperesthesia is another sign pointing to stable lesions. Hypo-esthesia, on the other hand, points to a deficit.

Deutsche medizinische Wochenschrift, Leipzig

Oct. 6, 1922, **48**, No. 40

The Trypanosomicide "205." M. Mayer.—p. 1335.
Cyclamin Technic for Leukocyte Count. C. Schilling.—p. 1337.
Clearer Representation of Basophilic Erythrocytes by Means of the "Thick Blood Drop." H. Schreiber.—p. 1337.
Differences in the Blood Pressure Findings and Vascular Changes of the Arteries of the Arm and Leg in Insufficiency of the Aortic Valves, Hypertonia and Arteriosclerosis. E. Leschke.—p. 1338.
Eclampsia. O. Wuth.—p. 1339.
Diagnostic Value of Epinephrin Glycosuria in Pregnancy. H. Küstner. —p. 1340.
End-Results of Implantation of Testis. R. Mühsam.—p. 1341.
Diagnosis of Tuberculosis of the Bronchial Glands in Children. H. Langer.—p. 1343.
Effect of General Disease on the Dental Pulp. S. Gräff.—p. 1346.
Effect of Ultraviolet Rays on Phagocytosis. D. Albela.—p. 1347.
Economical Method by Which U-Shaped Capillary Tubes May be Used Several Times in Serial Researches on the Blood Serum. H. Bohn. —p. 1347.
Epididymitis Associated with Influenza. Engelen.—p. 1347.
Wearing Out of Nerve or Organ from Excessive Use. J. Bauer.—p. 1348.
Emphysema in General Practice. Goldscheider.—p. 1349.
Technic of the Testing of Vision. K. Steindorff.—p. 1351.
*The Campaign Against the Nostrum Evil in America. W. A. Puckner. —p. 1352.

German Appeal for Data on the Work of the Council on Pharmacy and Chemistry of the American Medical Association.—The editor of this weekly wrote asking for an account of the workings of the Council, saying that the public health authorities in Germany and also the courts fail to take as strong a stand on the nostrum evil question as is desirable. Dr. Puckner, secretary of the Council and director of the A. M. A. chemical laboratory, prepared this article in response, explaining the aims and objects of the American Medical Association and its four "Councils," and the work of the Council on Pharmacy and Chemistry in particular since it was founded in 1905. As written up for the German profession in this article, the progress accomplished makes an impressive showing and, incidentally, Puckner emphasizes that the medical press has not suffered in the long run from excluding questionable advertisements.

He expatiates in particular on the advantage of informing the medical student thoroughly as to the therapeutic value of a few well established drugs rather than, as in the past, allowing him to leave the school with a smattering of knowledge of many drugs, and thus be left liable to become the easy prey of the exploiters of unscientific or worthless proprietaries. The repeated efforts of the German profession to inaugurate similar work in Germany have been duly chronicled in the News department of THE JOURNAL and elsewhere, the Arzneimittelkommission being now actively at work, but it has as yet a precarious financial backing.

Deutsche Zeitschrift für Chirurgie, Leipzig

September, 1922, **174**, No. 5-6

Points of View of Present Cancer Research and Treatment. K. Fritsch. —p. 289.
Origin and Treatment of Subcutaneous Rupture of Long Biceps Tendon. G. Rosenburg.—p. 311.
*Development and Value of Lumbar Anesthesia. O. Hagedorn.—p. 330.
*Pylorospasm of Infants and Its Treatment. B. Hein.—p. 356.
*Spontaneous Necrosis of Extremities. F. Krampf.—p. 387.
Etiology of Perthes' Disease (Follows Traumatic Luxation of the Hip-Joint). N. Rehbein.—p. 416.
An Obliterated Muscle of the Stomach. E. Bircher.—p. 424.

Development and Value of Intraspinal Anesthesia.—Hagedorn wishes to see lumbar anesthesia employed by practitioners in urgent cases.

Pylorospasm of Infants and Its Treatment.—Hein operates if internal treatment in four or five days does not give sufficient relief. Rammstedt's method is easy, short, and gives the best results.

Spontaneous Necrosis of Extremities and Endarteritis Obliterans.—Krampf does not believe in primary obliterating endarteritis and endophlebitis. He found identical changes, proliferation of intima and splitting and increase in number of elastic fibers, in a case of traumatic thrombosis, and concludes, therefore, that a primary arteriosclerosis is neither proved nor necessary for the explanation of spontaneous necrosis of extremities in young persons. These changes are secondary to thrombosis. Constitutional elements seem to account for it much more than exogenous factors.

Klinische Wochenschrift, Berlin

Oct. 14, 1922, **1**, No. 42

Endemic Struma, Cretinism and Their Prophylaxis. G. Hotz.—p. 2073.
Ingestion of Sodium Lactate as Liver Function Test. E. Hesse and A. Havemann.—p. 2077.
Bilirubin Formation in the Spleen. A. Rice Rich.—p. 2079.
Chemical Changes in Blood After Ingestion of Salt Solutions in Health and in Diabetes. W. Arnoldi and S. Ettinger.—p. 2082.
Etiology of Experimental Glycosuria in Pregnancy. E. Frank.—p. 2084.
Gastroscopy in Diffuse Gastric Lymphosarcoma. Schindler.—p. 2086.
Moro's Diagnostic Tuberculin. Kretschmer.—p. 2087.
*Duration and Concentration of Arsphenamin in Blood. H. T. Schreus and A. Holländer.—p. 2089.
Comment on Handovsky's Article in No. 35. H. Freund.—p. 2092.
Reply. H. Handovsky.—p. 2093.
Pharmacology of Potassium and Calcium. M. Rosenmann.—p. 2093.
Pigmentation of Kupffer's Cells by Bile in Mechanical Icterus. O. Kanner.—p. 2094.
Rachitis and Growth. F. Wengraf.—p. 2095.
Perforation of Sarcoma of Stomach Into the Abdominal Wall. H. Kolbe.—p. 2095.
Size and Measurements of Heart. H. Dietlen.—p. 2097.
Physicians and Choice of Profession. W. Pryll.—p. 2102.

Oct. 28, 1922, **1**, No. 44

Treatment by Parenteral Injection of Proteins. M. Matthes.—p. 2169.
*Calcium and Potassium in Nephritis. H. Zondek, H. Petow and W. Siebert.—p. 2172.
Surgical Complications in Trichocephalus and Oxyuris Infections. Anschütz.—p. 2174.
Significance of the PH of Urine. W. H. Veil.—p. 2176.
The So-Called d'Herelle Phenomenon. K. W. Jötten.—p. 2181.
*Endocrine Lesions of Tadpoles from Thallium. A. Buschke and B. Peiser.—p. 2182.
Heredity in Criminals. E. Reiss.—p. 2184.
Roentgen Ray Healing of Recurrence of Cancer of Breast of Five and More Years' Duration. A. Hintze.—p. 2187.
Specific Dynamic Action of Food. J. Abelin.—p. 2188.

Biologic Proof of Permeability of Red Cells for Cation. E. P. Pick.—p. 2188.
Generalized Emphysema in Tuberculosis of the Lungs. L. Alterthum.—p. 2189.
Spontaneous Gangrene of Scrotum and Penis. A. Salinger.—p. 2190.
Skiagraphy of Brain. A. Bingel.—p. 2191.
Association Against Tuberculosis in Nuremberg. A. Frankenburger.—p. 2197.

Duration and Concentration of Arsphenamin in Blood.—Schreus and Holländer found that fifteen minutes after injection of arsphenamin only 30 per cent. of the drug was circulating. After half an hour, only 20 per cent. The curve then slowed down and was very small after three hours.

Calcium and Potassium in Nephritis.—Zondek found in cases of insufficiency of the kidneys a distinct decrease in calcium in the blood plasma (down to 6 mg. in 100 c.c.) and an increase in potassium (up to 24 mg.). Similar changes were found in severe acute cases of glomerular nephritis.

Endocrine Lesions in Tadpoles from Thallium.—Buschke and Peiser state that thallium inhibits growth and metamorphosis of tadpoles. Thymus and thyroid can overcome this action only partially. It seems that thallium acts chiefly on organs which direct the growth and development.

Nov. 4, 1922, **1**, No. 45

Reflexes and Their Physiologic Significance. V. v. Weizsäcker.—p. 2217.
Function of Neuro-Epithelium in the Labyrinth. K. Wittmaack.—p. 2220.
Criticism on Abderhalden's Direct Reaction. H. Sachs and K. v. Oettingen.—p. 2223.
Chronic Affections of Kidneys in Endocarditis Lenta. Nonnenbruch.—p. 2225.
Chronic Progressive Deforming Polyarthritis and Exophthalmic Goiter. G. Deusch.—p. 2226.
*Hereditary Hemolytic Jaundice. G. Freymann.—p. 2229.
Double Meal Test of Stomach Function. J. Vándorfy.—p. 2231.
Fractures of Neck of Femur. F. Böhringer.—p. 2232.
Influence of Ionic Changes on Enervated Striated Muscles and Their Pharmacologic Analogy. E. Frank et al.—p. 2238.
Water and Mineral Metabolism in Tetany. H. Elias et al.—p. 2238.
Sensitive Test for Morphin in Urine. F. A. Loofs.—p. 2239.
Central Rupture of Perineum. Seyffardt.—p. 2239.
Lupus Pernio with Cystic Fibrous Osteitis. H. Lippert.—p. 2240.
Diagnosis and Treatment of Acute Colitis. R. v. Lippmann.—p. 2241.
Milk Supply. M. Bing.—p. 2244.
Recent Works on Suprarenal Capsules. L. Lichtwitz.—p. 2245.

Hereditary Hemolytic Jaundice.—Freymann reports the cases of three children with hereditary icterus presenting signs of infantilism, dilatation of heart, with murmurs, and ulcera cruris. The extirpation of the spleen cured all of these symptoms.

Medizinische Klinik, Berlin

Sept. 17, 1922, **18**, No. 38

*Gangrene of the Lung. H. Curschmann.—p. 1200.
*Rectal Cancer. L. Kuttner.—p. 1201.
Evolution of Conception of Inflammation. F. Marchand.—p. 1207.
Experimental Syphilis. P. Uhlenhuth.—p. 1210. Conc'n No. 40.
Fibers in Optic Nerve. C. v. Hess.—p. 1214.
*Meningococcus Sepsis. H. Adler.—p. 1216.
Diagnosis of Swine Plague in Man. H. Rahm.—p. 1217.
*Research on Heredity. V. Haecker.—p. 1218.
The Primal Cause in Biology. H. Zimmermann.—p. 1222.
Tonics, etc., Required for Traumatic Neuroses. Stier.—p. 1224.
Present Status of Treatment of Exophthalmic Goiter. K. Singer.—p. 1228.
Recent Works on Foot Deformities in Children. S. Peltesohn.—p. 1229.

Arsphenamin Treatment of Gangrene of Lung.—Curschmann relates that he has encountered 5 cases of gangrene secondary to pneumonia in the last few years. In the latest case the gangrenous process developed three or four days after the onset of the pneumonia in the farmer of 26. The mortality under medical treatment used to average 75 or 80 per cent., but since the advent of arsphenamin, 9 cases have been reported completely cured by this drug, and 4 materially improved. In 4 other cases no benefit was apparent. In the case here described the gangrene was rapidly progressive but it was arrested and the lung healed completely in thirty-six days, with a total of only 1.35 gm. of the neo-arsphenamin. In a case of fetid infection of bronchiectasia, in a man of 71, great improvement followed a course of 4 gm. of neo-arsphenamin in six weeks. This subjective cure has persisted for six months to date, the benefit in this case far surpassing anything ever realized with ordinary treatment in such a case. In another case of gangrene of the lung, the woman showed notable improvement under the neo-arsphenamin but it did not last. This treatment was not begun till the third month, and the privations of refugee life had sapped her strength. The complete cure in the farmer was due in large part to the early beginning of treatment, only two and a half weeks after the first fetid sputum had been noted. The gangrene in these cured cases was of bronchial, not embolic origin, a spontaneous metapneumonic solitary process. In none of his cases was the fuso-spirillar combination or spirochetes or tubercle bacilli found.

Diagnosis of Rectal Cancer.—Kuttner admits that a rectal cancer can long develop without any symptoms to attract attention, but declares that it is inexcusable to overlook it when consulted on account of bleeding, diarrhea or tenacious constipation, abdominal pain or vague pains in the sacral or bladder region, or pain suggesting sciatica. Especially in the twenties and thirties, pains in any of these regions calls, he reiterates, for digital investigation of the rectum. Under 30, the symptoms from a rectal cancer are especially liable to be misinterpreted. When hemorrhoids are found, they are incriminated for the bleeding and no further search is made for its source. Even the absence of visible and occult blood does not exclude a cancer. The bleeding is especially instructive when accompanied with tenesmus. It is especially significant when tenacious constipation occurs after years of regular bowel habits. Diarrhea is too often treated as simple colitis until the opportunity for removal of the causal cancer is past. With any obstinate bowel irregularity, at any point, the rectum should be examined, not once, but repeatedly. Christen found tuberculosis in the family in 26.5 per cent. of his cases of rectal cancer, and Kuttner has had five cases with pulmonary tuberculosis; in each instance the rectal cancer had failed to be discovered. In three cases of rectal cancer without local symptoms the general weakness, anemia, etc., had been ascribed to latent tuberculosis and the rectum had not been examined. In several cases the well nourished condition led to the abandoning of the idea of malignant disease although the tumor had been found. In some of Kuttner's inoperable cases the patients continued to gain in weight, and only the lethal course of the cases convinced the attending physicians that malignant disease had been present. In some of his cases obscure liver disturbances and jaundice proved to be secondary to a rectal cancer running a silent course.

He emphasizes the importance of having the intestine thoroughly cleared out and the bladder empty for the digital examination. On suspicion of spasm, a general anesthetic should be given. The prostate or a fold or the adnexa may be mistaken for a cancer during the digital examination; in several cases operations have been performed on this blunder. In one instance a small tumor in the adnexa was resected as the source of the tenesmus, etc., and the cancer encircling the sigmoid flexure was not discovered even during the operation. Even with a palpable tumor, roentgenography should not be omitted; in the digital examination a high tumor may be pushed out of its natural place, and the surgeon be misled as to the easiest route of access, or as to the extent of the lesion. A case is described in which the roentgen findings were entirely negative; evidently the ileocecal valve was not functioning properly, and the fluid and air passed freely through it, without distending the bowel below. Kuttner now insists on an exploratory laparotomy in dubious cases, even with negative local findings. Besides tuberculosis, he has often found diabetes associated with rectal cancer. He has witnessed remarkable benefit from radium and deep roentgen therapy in some cases; others were not modified by it, while still others were temporarily improved so that an artificial anus could be dispensed with. In some of the inoperable cases, the radiotherapy was followed by a rapid decline. Some recommend making an artificial anus, then rinsing thoroughly, and then applying radiotherapy, but Kuttner prefers to keep the artificial anus for the last resource, trying everything else first.

Meningococcus Sepsis.—Adler relates that after complete subsidence of the meningeal symptoms in epidemic meningitis, the young man continued to have meningococci in the blood for three months. Finally the sepsis was conquered with neo-arsphenamin, and complete recovery followed.

Research on Heredity.—Haecker describes the present status and the newer methods of study of this subject.

Sept. 24, 1922, **18**, No. 39

*Infant Feeding and Dermatoses. C. Leiner.—p. 1241.
*Multiple Cancers. O. Steiner.—p. 1249.
*Fatal Insufficiency of Liver. E. Mayer.—p. 1253.
Treatment of Septic Abortion. M. Schneider.—p. 1254.
Relation of Arsenic to the Liver and to Arsphenamin Treatment of Syphilis. Gottschalk.—p. 1255.
Glycerin for Enrichment of Tubercle Bacilli. R. Steich and J. Pietsch. —p. 1256.
Recent Works on Psychotherapy and Sexual Science. W. Stekel.—p. 1259.

Infant Feeding and Dermatoses.—This is a postgraduate lecture. Leiner presents the present state of our knowledge in regard to eczema, strophulus and desquamating erythrodermia, and the influence on them of diet. He compares the contradictory views of different pediatricians. Desquamating erythrodermia occurs almost exclusively in the breast fed. He has seen it in two sets of twins. In one family the three children all presented this dermatosis, and the two breast fed died, while the one artificially fed infant recovered. Such cases suggest a constitutional element besides incriminating the mother's milk. Bowel disturbance is noted practically in every case; as this is cured, the dermatosis heals under the mildest measures. But it may not be possible to cure the intestinal disturbance, and death then is inevitable although the children had always been breast fed. Only in the cases of actual idiosyncrasy is the connection with the diet certain.

Multiple Cancer.—The two cases reported warn that when a cancer is found in the throat, the esophagus should be investigated for a second cancer. In the first case the malignant lump in the epiglottis region was resected ten weeks after the first symptoms. But the decline continued, and necropsy revealed the fatal cancer low in the esophagus. In the other case, the esophagus tumor had been discovered but the one in the epiglottic vallecula had been overlooked.

Fatal Insufficiency of the Liver.—Mayer discusses the duration of cirrhosis and acute atrophy of the liver before the fatal termination. It is impossible to estimate the duration of acute yellow atrophy of the liver or of cirrhosis of the liver from clinical observation or even from postmortem findings. The patient may die with the symptoms of typical insufficiency of the liver without presenting the histologic findings of yellow atrophy. The insufficiency of the liver can be proved anatomically in some of the cases by its action on other organs, especially by the diffuse fatty infiltration of the kidney cortex, and by hemorrhages in the lungs and serous membranes.

Oct. 15, 1922, **18**, No. 42

Criticism on Psychologic Extremists in Psychiatry. W. Jacobi.—p. 1333.
Therapeutic Freezing of Nerves. B. Valentin.—p. 1337.
Pathogenic Influence of Light on Human Organism. E. Pulay.—p. 1339.
Relative Aortic Insufficiency. F. Reiche.—p. 1341.
Injury of Hemopoietic Organs with Arsphenamin. F. Juliusberg.—p. 1341.
Unilateral Progressive Dystrophia of Muscles. E. Adler.—p. 1343.
Humeroscapular Periarthritis as a Symptom of General Arthritis. F. Kanzow.—p. 1343.
*Alternating Treatment with Arsphenamin Preparations. Bockholt.—p. 1344.
Two Obstetrical Observations. R. Kobes.—p. 1346.
Colorimetric Determination of Partial Hemolysis in Wassermann Reaction. H. Hecht.—p. 1348.
Agglutination of Tubercle Bacilli. W. Kiyokawa.—p. 1348.
Dold's Turbidity Reaction for Syphilis. H. Ziskoven.—p. 1349.

Alternating Treatment with Various Arsphenamin Preparations.—Bockholt hoped to prevent arsphenamin dermatitis by alternating neo-arsphenamin and silver arsphenamin. He failed.

Oct. 29, 1922, **18**, No. 44

*Heart, Vessels and Constitution. R. Schmidt.—p. 1395.
Idiopathic Osteopsathyrosis and Endocrine System. Meissner.—p. 1397.
Familial Neurofibromatosis with Posttraumatic Sarcomatosis. M. Versé. —p. 1400.
*Fever in Angina Pectoris. A. Hanser.—p. 1402.
Treatment of Abortion with Instruments Outside of Hospitals. Pentz. —p. 1405.
Localized Relapsing Dermatitis After Mercury. E. Langer.—p. 1406.
*Bilirubin in Duodenal Fluid in Pernicious Anemia. Sonnenfeld.—p. 1407.
Tropical Malaria Simulating Dysmenorrhea. F. Rosenberger.—p. 1409.
Direct Irradiation of Blood by Ultraviolet Rays. Naswitis.—p. 1410.
Icterus and Diseases of Liver. E. Pickardt.—p. 1413.
Pregnancy and Diseases of Heart Valves. K. Brandenburg.—p. 1414.

Heart, Vessels and Constitution.—Schmidt prefers to consider as constitution the anatomic or functional individual singularity of organs or systems instead of using the vague term of general constitution. But he broadens the term sufficiently to include acquired endogenous and exogenous changes. Many details on prognosis and distant relations of different types of cardiovascular structures and changes are given.

Fever in Angina Pectoris.—Hanser recommends to measure the temperature after attacks of angina pectoris and to keep the patient in bed as long as the fever lasts, even if there are no other severe symptoms.

Bilirubin Content of Duodenal Fluid in Pernicious Anemia.—Sonnenfeld found the concentration of bilirubin in the duodenal fluid strongly increased above the normal.

Nov. 5, 1922, **18**, No. 45

Differentiation of Congestion in Kidney and Nephritis. Schlayer.—p. 1425.
Syphilitic Heart Lesions and Their Treatment. L. Görl and L. Voigt. —p. 1426.
*Familial Arteriosclerosis. R. Ehrmann.—p. 1431.
Acute Yellow Atrophy of Liver. G. Kollmann.—p. 1432.
*Congenital Stenosis of Duodenum Resembling Pylorospasm. E. Stransky. —p. 1433.
Anesthesia and Instrumentation in Tonsillectomies. Birkholz.—p. 1433.
*Expedients in Suture of Perineum. H. Strube.—p. 1435.
Relation of Dold's Reaction to the Sachs-Georgi Reaction. H. Dold.—p. 1436.
Manifestations of Exudative Diathesis. K. Blühdorn.—p. 1439.

Familial Arteriosclerosis, Especially of the Aorta.—Ehrmann publishes roentgen pictures of two brothers of 50 and 53 with severe arteriosclerosis, which manifested itself in each at the age of 40. Their father died at 40, his two brothers between 40 and 50, from heart disease and contracted kidney. The younger of the two patients lived quietly and avoided hard work. The older one used to ride and march and indulged in rich food and alcohol. The latter, although older, has by far less pronounced changes.

Congenital Stenosis of Duodenum Resembling Pylorospasm.—Stransky describes a case of congenital stenosis of the duodenum with all the signs of pylorospasm, including hypertrophy of the pylorus. If the baby had been operated on by the Weber-Rammstedt method (dissection of the pyloric ring), it would have died just the same. A gastroenterostomy might have saved it.

Expedients in Suture of Perineum.—Strube introduces a Hegar dilator in the rectum for better orientation in lacerations of third degree. To diagnose the function of the sphincter ani, he introduces a suppository, leaving its base outside. A sound sphincter pushes it out. If it remains in place, only the internal sphincter is torn. If only the external sphincter is not functioning, the suppository, pushed in a little farther, slides into the bowel.

Monatsschrift für Geb. und Gynäkologie, Berlin

August, 1922, **58**, No. 5-6

Roentgen-Ray Study of Birth Mechanism. H. Sellheim.—p. 237.
*Abdominal Cesarean Section for Placenta Praevia. R. T. von Jaschke. —p. 249.
Prolapse of Ureter Diverticulum During Childbirth. Schroeder.—p. 261.
Experiences with the Kielland Forceps. A. Bruch.—p. 265.
*Skin Functioning in Sepsis. A. Mayer.—p. 272.

Cesarean Section with Placenta Praevia.—Von Jaschke insists that the opponents of cesarean section in treatment of placenta praevia will have to present figures showing an equally good outcome for both mother and child before their objections can be considered.

Skin Functioning Tests in Septic Conditions.—Mayer discusses the behavior of the skin as an aid to prognosis. He estimates the functional capacity of the skin by its ability to respond to stimuli. A simple and apparently reliable test for this is its power to absorb tincture of iodin. In very grave cases, tincture of iodin painted on the skin persists without much change, while in the healthy it soon fades away. Microscopy of the capillaries is instructive also, as likewise the appearance of glucose in a cantharides blister

fluid after test ingestion or intravenous injection of glucose. This test is applied from within outward, while the iodin test works from without inward.

Zeitschrift für Krebsforschung, Berlin

Oct. 19, 1922, **19**, No. 2-3

*Roentgen Cancer. L. Halberstaedter.—p. 105.
*Immunization in Mice Tumors. K. Nather.—p. 115.
*Histogenesis of Tar Cancer. H. T. Deelman.—p. 125.
Tumor Cells and Tumors. E. Schwarz.—p. 171.

Roentgen Cancer.—Halberstaedter points out that it takes years for roentgen cancer as well as xeroderma pigmentosum and "sailor's skin" to develop. The amount of short rays which act upon the skin, and the sensitiveness of the skin are determining factors. In all of these conditions we have at first inflammatory changes, then an abnormal distribution of pigment, regressive changes in the connective tissue, and the very important formation of warts. These processes resemble exceedingly the experimental tumors produced by tar. At last, even after the original cause has been removed, carcinoma, sarcoma or a mixed tumor may develop.

Immunization in Mice Tumors.—Nather tried partly to immunize mice against a virulent adenocarcinoma, partly to cure them by injections of emulsions and autolysates of the tumor cells. The results were absolutely negative.

Histogenesis of Tar Cancer.—Deelman publishes a very careful study on the histologic changes in beginning tar cancer of mice. The cancer cannot be prevented by stopping the application of tar after slight macroscopic changes have appeared, although it seems that the change of the seemingly benign affection into cancer occurs earlier if the irritation is continued.

Zeitschrift für Tuberkulose, Leipzig

September, 1922, **36**, No. 7

*Transactions of the German Conference on Tuberculosis.—p. 481.

Experiments on Relation of Lupus to Human or Bovine Bacilli.—Kirchner found tubercle bacilli of the human type in eleven cases of lupus, and of the bovine type in twelve cases. In thirteen cases bacteriologic examination was negative.

October, 1922, **37**, No. 1

*Climatic Observations in High and Middle Altitudes. C. Flügge.—p. 1.
Duration of Sunshine in Schömberg and Davos. C. Dorno.—p. 13.
Comment on Dorno's Article. G. Schröder.—p. 18.
Complement Fixation in Tuberculosis. G. Ichok.—p. 22.
*Further Therapeutic Experiments in Tuberculosis. F. Jessen.—p. 33.
*Toxicity of Tuberculin in Diagnostic Doses. Schwermann.—p. 37.
New System of Graphic Records of Lung Findings. C. O. Segerberg.—p. 44.
*Gwerder's Relaxation Pneumothorax. A. Wolff-Eisner.—p. 48.

Climatic Observations in High and Medium Altitudes.—Flügge believes that the climate in high altitudes has many advantages, which account for its favorable influence and which can be compensated only by prolonged treatment in other places.

Further Therapeutic Experiments in Tuberculosis.—Jessen anoints patients with the serum of animals injected with an ether extract of tubercle bacilli, and reports favorable results, especially in beginning cases.

Toxicity of Different Old Tuberculins Especially in Diagnostic Doses.—Schwermann concludes that only careless injections of tuberculin for diagnostic purposes, especially in unnecessarily large doses, are harmful. The indications are limited, but clear, and the reliability and value of the test are great.

Gwerder's Relaxation Pneumothorax.—Wolff-Eisner discusses the intrathoracic pressure in cases of artificial pneumothorax without exudates. He extols Gwerder's method of keeping the intrathoracic pressure negative even during the expiratory phase. He prefers the term *entlastungspneumothorax* to Gwerder's *entspannungspneumothorax*, as more descriptive.

Acta Scholae Medicinalis Univ. Imp. Kioto

April 28, 1922, **4**, No. 4. Articles in German, English or French

*Thyroid Function on Different Diets. K. Tsuji.—p. 471.
Toxic Action of Eel Serum. H. Yamaoka.—p. 481.
*Thrombo-Angiitis Obliterans. K. Koyano.—p. 489 and p. 501.
Elimination of Mineral Substances by Fasting Hens. Y. Sata.—p. 511.
The Circulation in the Cold-Blooded. K. Kitamura.—p. 553.
*Classification of Dysentery Bacillus. I. Matsuo and T. Izawa.—p. 571.

Thyroid Function on Different Diets.—Tsuji found that the thyroids of rats fed on large quantities of egg-yolk or milk hypertrophy. The animals presented besides a hypertrophy of various organs similar to that produced by feeding the animals with thyroids. Since these organs atrophy in thyroidectomized rats, in spite of large quantities of egg-yolk or milk in the food, Tsuji concludes that these substances act on the thyroid in a similar way as iodin.

Thrombo-Angiitis Obliterans.—Spontaneous gangrene of extremities seems to be quite frequent in Japan, since Koyana was able to collect 120 cases of it in one surgical clinic. He recommends repeated hypodermic injections of Ringer's fluid, which relieves the pains, lowers the increased blood viscosity and makes high amputations superfluous.

Classification of Dysentery Bacillus.—Matsuo and Izawa were able to induce the Y type of dysentery bacillus to split many sugars, thus simulating other types of dysentery bacilli. Yet the strains did not change immunologically.

Acta Medica Scandinavica, Stockholm

May 31 1922, **56**, No. 5

*Antitoxin Treatment of Diphtheria. V. Bie.—p. 537.
*Myodystonic Reaction. G. Söderbergh.—p. 585. Idem. p. 601.
Hemorrhagic Arachnoiditis with Porencephalia. N. Stenström.—p. 591.
Syndrome Belonging to the Pseudosclerosis Group with Pigmentation, Cachexia and Corneal Changes. G. Söderbergh.—p. 604.
Comment on Lindberg's Article.—p. 162. C. Sonne.—p. 618.

Antitoxin Treatment of Diphtheria.—Bie finds that antitoxin has no effect on the temperature in diphtheria. He does not think that it has any great influence on the spreading of the membranes, but believes that diphtheria itself has become milder of late and therefore we do not see these cases so often. It seems that antitoxin hastens the disappearance of the membrane to a certain extent. The one outstanding favorable property is its antitoxic influence. Bie does not give any antitoxin in very light cases, and only 4,000 to 8,000 units on admission in cases with a membrane just covering the tonsils. In severe cases, however, he does not hesitate to give enormous doses: patients under 10 years are given 80,000 units on admission, another 60,000 within twelve to twenty-four hours and 20,000 more after twelve hours, partly intramuscularly and partly intravenously. The largest single dose of antitoxin in an adult was 100,000 units (in 140 c.c. of serum); the largest total amount 350,000 units (in 250 c.c. of serum), of which 56,000 units (in 40 c.c.) were given intravenously. Under this treatment the mortality decreased to 0.7 per cent. and no patient has died from paralysis of respiration in the last nineteen months notwithstanding a large material. The number of cases of diphtheria in the entire nine years analyzed totaled 8,980.

Myodystonic Reaction.—Söderbergh found the same reaction which he described previously in Wilson's disease in a case of pseudosclerosis. The reaction consists in clonic or tonic contractions of muscles after faradic stimulation of muscles (or sometimes of nerves or even galvanic stimulation) had stopped. The reaction may be valuable in determining an organic lesion, although it is not yet certain whether it is pathognomonic for lesions of the central ganglia of the brain.

Ugeskrift for Læger, Copenhagen

Oct. 12, 1922, **84**, No. 41

*Causes of Death in Acquired Syphilis. L. Melchior.—p. 1351.
Microtest for Chlorin in Fluids Containing Albumin. M. Claudius.—p. 1366.

Causes of Death in Acquired Syphilis.—Melchior analyzes the 358 known syphilitics among 5,865 adult cadavers at Copenhagen. Over 45 per cent. died from conditions not connected with the syphilis; 1.7 per cent. died from by-effects of mercury or arsphenamin; 39 per cent. succumbed to a syphilitic affection, and this was probable also in 14 per cent. others. Hence the direct mortality from the syphilis was between 39 and 54.7 per cent. The various syphilitic affections are discussed in detail as they appeared in this material.